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ABDERHALDEN'S SERO ENZYNE TEST FOR SYPHILIS.

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A scientific question is solved as a puzzle. In no man's brain does the answer spring full blown, but each one's contribution suggests a line of work to someone else until after many trials, and after much tearing down and building up, the problem finally stands fully developed and unassailable. Nothing shows that men are really the vehicles of the time's ideas so well as the studies of immunity. On no one subject is the literature so voluminous and the trend is all toward the idea that immunity is not a complicated matter of many interacting substances in the organism, but is simply one of the manifestations of ferment action.

Long dominated by the invaluable but involved hypothesis of Ehrlich with its multi-morphous side-chains and intermediary bodies, each of which has as many names as Joseph's coat had colors, the ideas of immunity were for a long time hampered by what we may call a graphic conception. We visualized side chain and our immunity concepts were symbolic rather than descriptive.

To America belongs the honor of breaking out from this restraint and it was Vaughan's work and suggestions on the parenteral injection of proteins that gave the new trend to our conceptions of immunity. As we are becoming more and more aware, immunity is a simple matter of parenteral digestion by ferments elaborated by the body cells. These ferments may be retained within the cells or discharged into the blood or may be shown in both the blood current and certain groups of cells coincidentally.

Abderhalden has applied the principle of parenteral digestion *in vitro* by subjecting the foreign protein to the ferment present in the blood serum, showing that the protein is broken down

into simpler dialysable bodies which may be detected in a dialysate by determining their amino-acid groups with tricketo-hydrinhydrenate.

The technic consists in mixing the immune blood with the thoroughly coagulated washed antigenic protein in a dialysing thimble and hanging the thimble in a capsule of distilled water. The capsule is incubated for twelve hours or longer and finally the dialysate is tested for amino-acid groups with ninhydrin.

The possibilities which this work of Abderhalden's suggests are numerous. Already the technic has been applied to many and diverse conditions from psychiatry to infectious diseases and to derangements of the internal secretory apparatus.

The limitations of the Wassermann reaction leave much to be desired of it as a test for syphilis. In the first place, as now used it is not a specific immune reaction but a lipotropic phenomenon common to several diseases. The time consuming preparation of the necessary material and the necessity of carefully controlling and standardizing it detracts somewhat from its usefulness as a test. The experience and judgment necessary in a reliable Wassermann worker confine the reaction to the specialist and prevents its universal application. As now used there is no such thing as a specific syphilitic antigen.

ADVANTAGES OF THE ENZYMES.

Theoretically then, the enzyme test as applied to syphilis has great advantages. In the first place it should be specific, and in the second place the technical procedure is simple in principle and the materials required small in number and amount. This technic consists in placing a fragment of the prepared syphiloma and the suspected blood in a dialyzing thimble, incubation and subsequent testing for amino acids by the biuret reaction or ninhydrin. When we apply this test, however, we are confronted with certain technical difficulties. In the first place this blood must be drawn in such a way that no hemolysis will take place resulting in a pink serum after separation from the clot. The technic of withdrawal and subsequent handling

are discarded. Further the tubes are all saved beside their respective sacs, and the depth of color as nearly as possible compared for the purpose of matching the sacs in pairs or in groups of three. These sacs are numbered with India ink on their rims for further identification. Since exactly eight cubic centimeters of dialysate and one-half cubic centimeter of peptone are used, followed by an equal incubation period the intensity of color in equal volumes of dialysate with equal volumes of indicator boiled for the same length of time should be equal in equally permeable sacs. We think this point is important and will only use sacs belonging to the same group when controlling a serum in the test.

The acceptable sacs are now washed thoroughly and placed in a jar of distilled water over chloroform, and under toluol until needed.

For use they are rinsed and heated as before and placed in the dializing capsules. One half cubic centimeter of serum is now placed in the sacs and a small piece of syphilitic tissue added. It was suggested by one of us (Varney) that human syphiloma theoretically should be more suitable for the test than the lesions on rabbit testicle because of its greater specificity. We have therefore used small pieces of richly vegetating condyloma which dark field examination showed to be loaded with spirochaetae. Controlling this in a large number of tests we have used the syphiloma of a rabbit's testis rich in spirochaetae. The tissue is prepared by thoroughly washing in salt solution, while fresh, to remove the blood, (this is not so necessary in the case of lesions in the rabbit testis) and then boiling thoroughly in distilled water until the water gives no reaction with ninhydrin. Small fragments of this tissue were preserved dry in sterile flasks and other fragments over chloroform in distilled water under toluol.

Toluol six drops is placed inside and outside the sacs, the capsule corked and the whole placed in the incubator for twelve to eighteen hours. At the end of this time the dialysate is measured into test tubes in quantities of five cubic centimeters per tube, four drops of ninhydrin added and boiled for exactly one minute. It is well to let the tube stand a few minutes to develop the full depth of color.

For each serum to be tested three tubes are necessary plus a common control containing tissue and salt solution only.

In one tube we have human condyloma plus serum, in the second rabbit syphiloma plus serum, and in the third serum alone. Obviously a positive test should show a distinct blue in the dialysate of the sac containing tissue and none or a slight reaction in the serum control, depending upon the amount of amino-acid present in the serum itself. We believe that the tissue should be boiled in fresh water a moment each

time before being used to insure its freedom from amino acids and chloroform, since it has seemed to us that chloroform interferes with the reaction.

The blood we find is best obtained directly in a Swift-Ellis tube by a large bore McRae needle. This allows centrifugation if necessary without transferring the blood. A further precaution to insure against hemolysis is to have the "S.-E." tube kept in sterile physiological salt solution ready for use.

INTERPRETATION OF FINDINGS.

The interpretation of the findings of the cases reported are as follows:

Of the seventy-five cases forty-five were clinically syphilitic and were positive to repeated Wassermann reactions. From this number of positive Wassermann findings 35, or 77.7 per cent. were positive to the enzyme reaction with human condyloma. Six sera from non syphilitis showed positive findings to the enzyme reaction, with human condyloma tissue: five of which presented clinical pus conditions. Ten clinically positive Wassermann serums were negative to the enzyme condyloma. Of the forty-three cases in which rabbit syphiloma was used, twenty-three of which showed positive Wassermann reactions, fourteen or 60.9 per cent. were positive to the enzyme reaction, nine sera which were clinically syphilitic, with positive Wassermanns failed to show the reaction with the syphiloma tissue from rabbits. Thus far the human condyloma tissue has shown a greater percentage of positive reactions than the syphilomata of rabbits. (77.7 per cent. against 60.9 per cent.)

On the other hand the condyloma tissue shows reactions from its mixed infection condition in non-syphilitic sera when the patient harbors any mixed infection. The syphilomata from rabbits gave no reactions in non-syphilitic conditions thus far examined. Syphilitic spinal fluid gave negative reactions to both tissues uniformly. Non-syphilitic diseases such as scarlet-fever in the florid stage, psoriasis, eczema, erythema-multiforma as well as ether-narcosis were uniformly negative to both tissues with but one exception, and that a case of psoriasis whose serum gave a positive reaction to the human condyloma tissue, this patient presenting boils at the time that the serum was taken.

These cases with but few exceptions were selected from the private cases of one of us (Varney) and have therefore been under careful observation both clinically and serologically for a long period of time.

CONCLUSIONS.

From these few experiments we think we are justified in assuming:

1. That the specificity of the Abderhalden technic applies to syphilis.
2. That syphilitics have in their blood serum enzymes which react with the protein of the organism.
3. That tissue derived from active human lesions are more specific than syphilitic tissue of the rabbit.
4. That mixed infection in the human lesion gives rise to error in mixed infections as shown in our cases of sinus disease, furunculosis, etc.
5. Further work will be required to determine whether all syphilitics have the power of developing ferment and at what stages of the disease the test is present or absent.
6. We believe that polyvalent antigens prepared from several stains of pure culture of the spirochaetae offer the best hope for further success with this technic.
7. That the degree of the success with the test varies in proportion to the care and precision exercised in its execution.
8. That for the present, no matter how carefully the material is prepared or the test carried out, this method does not by any means approximate the Wassermann reaction for practical usefulness.

GASTRO-ENTEROLOGY AND ITS PROBLEMS.*

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Perhaps in no other field of medicine have more revolutionary advances been made, advances which have compelled us to quite change our earlier conception of function, of disease and of treatment, than in the field of gastro-enterology.

It was in 1867 that Kussmaul brought out and used for the first time the stomach tube in the diagnosis and treatment of gastric disorders. Now followed a tremendous amount of work on the stomach secretions, the results of which were accepted at a value which we know to have been all out of proportion to their real importance. To the stomach was attributed a great number of diseases which did not properly belong to it. Secure, however, in such knowledge as he did possess, and unaware that many of his choice conceptions were faulty, the gastro-enterologist of a decade or so ago felt that he stood on a firm foundation—it is sure enough shifting-sand today.

The specialty had certain very attractive features; for one thing it seemed to offer rather unusual accuracy in diagnosis. The exact degree of gastric acidity was interpreted as having a meaning all its own, distinct and positive, so

the exact time of absorption, so the accurate determination of pepsin and rennet, so the exact degree of ptosis. Stomach lavage and stomach lights, and stomach balloons and churns and electrodes were popular with both the profession and their patients. With gastric symptoms attributed to true local disease, such therapy was not unreasonable, but the patient whose symptoms were due to chronic gall-bladder disease, appendicitis, arterial sclerosis, chronic nephritis, or locomotor-ataxia, proved unresponsive to such treatment, and most embarrassing to the doctor. So with further investigation, and the resulting increase in knowledge, came the gastro-enterologist of today, who, if he is at all up with the procession, spends less time with his treatments, and much more time on his diagnosis.

Realizing fully the manifold interrelations which must exist in an organ so closely associated through its nerve supply with other organs, both above and below the diaphragm, never forgetting that the stomach is closely connected with the basal-ganglia of the brain through its pneumogastric nerve, and so particularly susceptible to the influences of psychical impressions, the thoroughly competent gastro-enterologist of today must be of necessity a general diagnostician, a good internist; he must also be a laboratory man to a considerable extent, for if he has come to consider the absolute estimation of combined and free and organic acids of lesser importance, he does not overlook the value that they do possess. In addition, he has the multiplied problems of metabolism to work out as best he may. The excretions have their relative importance and ever there is a search for that Will o' the Wisp, an exact laboratory method for the diagnosis of early carcinoma. In addition to these not to be lightly considered labors, he has to look to his defenses; he must defend himself and his patients from the inroads of the over-zealous surgeon, inoculated by the virus of much reading along purely surgical lines, until he comes to believe for instance, that every gastro-duodenal ulcer is a surgical case, the diagnosis of which is comparatively simple. In fact, it would be wondrous easy could he accept unmodified Surgeon Crile's epigrammatic statement that "the man who carries a cracker in his pocket, has a duodenal ulcer;" or Surgeon Moynihan's assertion that "hyper-acidity is but an expression of duodenal ulcer."

And then there is the X-Ray man. He certainly does look good to the ordinary layman, and be he ever so honest, his enthusiasm for his work frequently leads him to over confidence in the accuracy of his fluoroscopic and radiographic interpretations. I do appreciate the great diagnostic value of the radiograph and more particularly the value of the fluoroscopic. I appre-

*Read before the Kent County Medical Society, Feb. 1914.

ciate the advances in the physiology and pathology of the gastro-intestinal tract made possible by the workers in this line, but it is timely to say here for the benefit of both physician and layman using the words of Doctor Levi in a recent number of the *Medical Record*.¹ "The X-Ray is not a nickel in the slot machine where the patient comes out with a diagnosis attached." Whatever the improvement in technic may be, the time will never come when we may look for the X-Ray to be more than one of our diagnostic aids, valuable, it is true, but infinitely less valuable than the combination of history, laboratory findings and general physical examination. Naturally when the clinician and the X-Ray man work together, the results will approach the greater accuracy.

It is singularly appropriate that the word abdomen should be derived from the Latin word *abders*, meaning to conceal; it is more singular that with the great advances made in general pathology and physiology, the word should have retained its appropriateness to such a recent time. So very recent are these investigations of gastroenteric functions and pathology, that I deem it not inappropriate nor entirely unnecessary to trace briefly some of the advances and the associated problems which in the gastro-enterological field seem to be nearing solution.

GASTRIC PHYSIOLOGY.

To Pawlow and Chigin, in Europe, and to Cannon and Starling in this Country, are we particularly indebted for our modern conception of gastric physiology. These pioneers have had scores of followers, who have been especially favored by the opportunity afforded through the great advancement in abdominal surgery, and the use of the X-Ray. The idea of the stomach as a bag, a simple reservoir for food, emptying by gravity and lying transversely, has given place to the idea of an organ which in life and at work, lies vertically in the left hypochondrium, not a reservoir, but an organ adaptable in size to the requirements put upon it; whose walls are rather closely in opposition to each other save when food is ingested, and whose position, size and shape varies not only in different individuals, but at different times in the same individual. "There is no normal type of stomach, each person possesses a stomach that fits his body" (Mills).

We have had to readjust our views on gastroptosis not only in regard to its influence on gastric functions, but as to just what constitutes ptosis. The view held by Ewald that a stomach must be considered ptotic if it falls below the umbilicus must be modified by the X-Ray examinations which show that in a large series of apparently normal individuals, the

stomach falls from one to two and a half inches below. Now, just what is the significance of this so-called ptosis in direct relation to stomach function and symptoms? Mighty little. The real problem is practically limited to the integrity of motor power, the size and position are insignificant factors if the stomach but empties itself in a normal time, and though we may have ptosis, and atony and even dilatation, it is the motor insufficiency which is the important factor in the production of symptoms.

A word here in regard to tonus might not be out of place. Tonus of the stomach is that muscular power which enables the stomach to adapt itself to its contents so as to hold these contents in a columnar position. Cannon has shown that this tonicity finds efferent impulse in the vagi, with section of the vagi this tonicity is lost. These experiments would seem to prove that it is due to the vagi that the size of the stomach changes with the requirements of the ingested food. This tonic stage is preliminary to peristalsis, the walls must be able to contract down on the food. In this connection I should like to speak of the work of Eppinger and Hess on "Vagotonia and Its Significance."² They believe that the vagus on the one hand and the gangliated sympathetic cord on the other, are the two diametrically opposed forces which control nearly all the processes of vegetative life, maintaining in health a perfect equilibrium between excitation and inhibition. Dividing the nervous system into two groups, the animal and vegetative, the former represented by fibres running to the voluntary muscles and organs, the latter by fibres running to the involuntary muscles and such organs as the stomach, intestines, heart, etc., they sought to separate these systems. Finding it impossible to separate them anatomically on account of the numerous anastomoses existing they sought to do so functionally by the use of pharmacological agents which can be shown to have a marked affinity for one or the other of these systems. They experimented with pilocarpin, physostigmin, muscarine and atropine. They found that the first three had a special stimulating effect on the organs supplied by the vagus-extended, the so-called automatic system, while atropine had a definite depressive effect. They further positively determined that adrenalin has a specific effect in the stimulation of the sympathetic system. The reasonable conclusion is, that the internal secretions have to do with these stimuli, some acting on one system of nerve supply, its antagonist on the other. For instance, if we inject adrenalin intravenously we get a cessation of peristalsis, and Eppinger believes its antagonist to be some hormone similar physiolog-

1. Levy. Roentgen Rays in the Diagnosis of Diseases of the Stomach, *Medical Record*, Oct. 25, 1913.

2. Gutman. "Archives of Diagnosis, April, 1913.
Hopkins. "A Clinical Study of Vagotonia," *Archives of Internal Medicine*, Nov. 5, 1913.

ically to pilocarpin. This substance he assumes to be a product of the internal secretion of the pancreas and calls it autonomen.

The term vagotonia is applied to those conditions in which the vagus is maintained in a state of hypertension, the organs which it supplies being peculiarly sensitive to vagus irritation. The smallest amount of pilocarpin, for instance, producing marked activity. Similarly there is marked insusceptibility to sympathetic stimulation.

The importance of this study is to be found in its application to individual organs. Symptoms of irritable vagus are manifested in the lungs by bronchial asthma, which can be produced in animals by peripheral vagus irritation (a classical example); increased bronchial secretion, spasm of the glottis, etc. In the stomach, by hypertonicity, hypermotility, great increase in gastric juice, and hyperacidity, pyloric spasm, and the gastralgias. In the intestine, the peristalsis is increased, producing either spastic constipation or diarrhea.

The authors state that the presence of an irritable vagus may materially influence the symptoms in the following pathological conditions—gastric ulcer and cancer, cholangitis, gallstones, cholecystitis, tabetic crisis and hyperthyroidism.

PYLORIC SPASM.

Certainly one of the most interesting—I am not sure but the most important of all factors in the study of the stomach, from the standpoint of physiology, of pathology, or diagnosis and of treatment—is associated with a proper understanding of the phenomena of pyloric spasm.

The experiments of Cannon opened to us a new field when they showed that the pylorus, the "Keeper of the Gate" as it was known to the ancients, is under acid control. That under the influence of the free acid of the stomach, of a certain degree of concentration, the pyloric sphincter relaxes, permitting the peristaltic wave to throw a jet of chyme into the duodenum. Almost coincident with this comes a reflex action on the part of the duodenum, itself stimulated by the acid, which closes the pylorus and holds it closed until the acid in the duodenum is neutralized through the flow of bile and pancreatic juice into this portion of the gut, where the stimulus to the closure of the pylorus on the part of the duodenum is weakened until the acid in the stomach once more opens the door. We might go further today, and suggest that we have here another example of this antagonism between sympathetic nerve stimulation and vagus nerve stimulation, referred to above in discussing the Eppinger and Hess experiments.

Not infrequently we have an interference with this sphincter control and there is pro-

duced obstruction of varying intensity, and of greatest importance. This is not an infrequent occurrence, but because of the failure to appreciate the condition, the clinical symptoms are frequently wrongfully interpreted and faulty diagnosis is frequently made. Now, what causes pyloric spasm? It is clear that since the sphincter is closed through irritation of certain nerve reflexes contained in the duodenal wall, that an over stimulation of this reflex will tend to produce a spastic condition. The most apparent causative factor is naturally an over acidity of gastric content, but given a normal acidity, or even an anacidity, it is easy to see how a local disease of the pylorus or duodenum can, through irritation, stimulate this reflex to over activity. The most severe spasms must occur when the combination of high acidity and raw surface, as in an ulcer, exist together, but a severe duodenitis may produce a similar condition, and from nearby diseased organs as the gall-bladder and appendix, from strangulation of the bowel and as has been shown experimentally, from gunshot wounds of the intestine, may come stimuli through the vagotonic nerve supply, causing a spasm as intense as those do to the nearer lesions. Stockton³ has seen pyloric spasm in cases of stone in the bladder, uterine retro displacements, and in nephritis, and says that more rarely it follows eye-strain, psychosthenia and nervous shock. In an excellent article on pyloric spasm, he says: "It is well to recognize pyloric spasm; it is usually fraught with meaning, however, it may mean widely different things, that is it may be produced from irritation arising in diverse regions. The confusing side of the matter, the difficulty of deciding upon the presence of pyloric spasm, depends upon the facts that the symptoms which the condition produces are not uniform. Here is a list of some of the most important manifestations; pain, epigastric tenderness, sour stomach, gaseous eructions, vomiting, which may become incoercible, a sensation of pressure or painful tension in the epigastric region, a definite area of resistance on palpation." The cardia during digestion is held in a state of tonic contraction also through acid control. Interference with normal intervention with the production of pyloric spasm, will reflexly cause a disturbance in the cardia which may relax from time to time, permitting eructation of gas, regurgitation of food and heartburn, symptoms ordinarily considered characteristic of hyperacidity, but which may occur without either an abnormal quantity of acid or gas in the stomach.

The dictum has gone out that hunger pain, pain an hour or two after eating, is almost pathognomonic of duodenal ulcer. It may well be suggestive but since hunger pain is but

3. C. C. Stockton. "Pyloric Spasm," Canadian Medical Association Journal, Dec., 1913.

the expression of pyloric spasm of marked degree, its interpretation must be well guarded, since anything which will produce this spasm will give a symptom.

Some one has well said that the stomach is the mouthpiece of many organs, it is only via the stomach that many of the organs below the diaphragm can come into contact with the conscious brain. This the gastro-enterologist fully realizes. He is willing to accept with some reservations the statement attributed to the Mayo clinic that only a paltry 10 per cent. of the patients presenting themselves with a so-called gastric disease have an actual demonstrable lesion, but he does object to the easy interpretation of this statement as suggestive that the 90 per cent. of cases are either surgical or due to a cause so remote that treatment directed towards the complaining organ is not efficient. Purely functional these symptoms may be, that is, the definite extrinsic or intrinsic cause is undeterminable, but there is evidence that this condition may offer a fertile soil for the later appearance of even such a definite, organic localized lesion as an ulcer. Take, for instance, the common irritative disorder hyper-acidity. Fenwick most emphatically states, whatever be the immediate cause of the hyper-secretion, the continued existence of the latter not only excites inflammation of the stomach and duodenum but also produces hemorrhagic erosions which occasionally increase in size and depth and finally acquire all the characteristic features of chronic ulcer. In this manner both gastric and duodenal ulcers are apt to ensue from hypersecretion due in the first instance to gall-stones and appendicitis, while the chronic colitis that develops in so many cases of hyper-secretion may eventually lead to appendicitis. This leads me to a brief discussion of the newer theories of peptic ulcers.

Before proceeding with this, however, I want to state that the purpose of this paper is not to make a special plea for the medical man especially interested in gastro-enterology any more than it is meant to be a criticism of the surgeon. I but want to show you some of the problems with which one is confronted, and to suggest that with a better understanding of physiology and pathology and etiology, the limitations of surgical treatment and the limitations of medical treatment as well, will be more sharply defined. We will not, for instance, overlook the fact that there may be in the individual patient an inborn or an acquired irritability of the vagus nerve—a tendency, if you will, to irritative disorders, which will remain unchanged by any surgical procedure.

GASTRO-DUODENAL ULCER.

The discoveries of the last few years indicate that at last we are about to solve the

mystery of the etiological factors concerned in the production of peptic ulcers. As a subject for theorization and discussion it has occupied a place only second to that time honored topic, *Why does the stomach not digest itself?*

There are several theories advanced, all of which are well substantiated by experimental data. It is probable that the truth lies either in the combination of these theories, or what is more likely that such an ulcer may find its etiology in different factors, some of which may act quite independently. It will be admitted that a peptic ulcer is a digestive ulcer, since it is only found in those areas with which the gastric juices come in contact. Freund's observation on an infant, two months old is interesting in this connection. The infant was operated on by gastro-enterostomy for pyloric stenosis. For a time progress was favorable, then came bloody stools followed by death, the autopsy showing ulceration of the jejunum below the opening which communicated with the stomach.

Since Weinland, in 1902, discovered the existence of an antipepsin in the wall of the stomach, and a similar substance antitrypsin in the intestinal wall, it has been appreciated that in part at least the existence of these opposing enzymes answers the question of why the stomach does not digest itself and bears an important relationship to the etiology of gastric and duodenal ulcer.

Katzstein⁴ believes that the epithelial cells of the stomach and intestines have a selective action for the antipepsin in the circulating blood, similar to the selective action of the renal epithelium for renal substances. Working on this theory he concludes that a gastric ulcer is the result of a local injury to the stomach wall which does not heal on account of the disturbance of the normal pepsin—antipepsin balance in the gastric juice. Careful experimental data seem to support his hypothesis.

More interesting, perhaps more acceptable is the work of Wilkie⁵ which lead to the conclusion that a thrombosis of some of the smaller vessels of the stomach is the important factor. From this infarct comes the hemorrhagic erosion which Aschoff has shown is the first stage in ulcer development.

In order to test out his hypothesis he produced thrombi in the omentalveins by means of a simple ligation or by searing the tissues alongside the vein with a hot platinum needle. Later he produced artificial emboli by injection into the veins of emulsions of charcoal or dermatol in oil. The animals were killed in from three to seven days after the operation and careful autopsies performed. In every instance he found

4. Arch. f. Klin. Chir., 1913, Vol. C, p. 939.

5. Laboratory Reports Royal College of Physicians Edin., Vol. XII.

numerous minute infarcts in the liver, thus showing that embolism had taken place along the normal blood course in the portal system. In a certain percentage of his animals he found in addition that there were multiple hemorrhagic erosions in the gastric mucosa. In addition to the erosions there was in three instances definite ulceration of the gastric mucosa and one animal showed an ulcer of the duodenum. These ulcers were punched out, sharply circumscribed areas and similar in every way to the acute gastric ulcer found in man. Microscopic examination showed that beneath the ulcerated area in the mucosa the minute vessels were thrombosed and that the thrombi moreover contained charcoal or dermatol when these substances had been injected into omental veins.

These experiments suggest that in them may lie at least a partial explanation of the association between gastroduodenal ulcer, appendicitis and gallbladder infection. The association of these diseases has long been recognized. In McCarthy and McGrath's study:

52 cases of ulcer.

26.9 per cent. were associated with chronic appendicitis.

In the Augustana Hospital reports 79 cases of ulcers.

44.3 per cent. were associated with chronic appendicitis.

17.7 bile tract infection.

3.8 with all three.

In Mitchell's series of cases, 48.

39½ per cent. were associated with chronic appendicitis.

LaRoque compiled the reports of 322 operative cases in 1910 and 1911. Thirty-three per cent of which were operated on for chronic appendicitis at the same time. This, it seems to me is open to the criticism that the determination of chronic appendicitis was made from gross appearance, and it is rather customary for the surgeon to remove an appendix on general principles when operating on the abdomen. It would seem, however, that there exists a clear etiological relationship between peptic ulcer and the infective processes in the region drained by the portal vein. In this connection I note the important work of Rosenow, of Chicago, on the production of ulcer of the stomach by the injection of various strains of streptococci. As a result of these experiments he draws the following conclusions⁶:

"Intravenous injection of streptococci of the proper grade of virulence may be followed by ulcer of the stomach and duodenum. The ulceration is due to a localized infection and secondary digestion. The ulcers are usually single and deep with marked tendency to hemorrhage and perforation, and resemble the human gastric ulcer in many respects. When we take into consideration this close re-

semblance, that injection of streptococci which have grown in tonsils produce the lesions, and that the virulence of the germs when the affinity for the stomach is greatest is of such character that a general infection does not occur, it appears altogether reasonable to suppose that in man gastric ulcer may be caused by streptococci also. The supposed relation between infected tonsils or gums and gastric ulcer may be due not to the swallowing of bacteria, as usually supposed, but to the entrance into the blood of streptococci of the proper kind of virulence to produce a local infection in the wall of the stomach. Many other observations might be cited such as associated infections of the gall-bladder and appendix, which suggest that gastric ulcer may be due to streptococci.

I cannot leave the subject of gastro-enterology and its problems without discussing what perhaps is the most important work of the year, the application of the Abderhalden method for the Sero-diagnosis of pregnancy to the Sero-diagnosis of carcinoma.

Ball, in a recent article in the *Medical Record*, says:

"Sufficient work has not yet been done to warrant the statement that cancerous conditions can be positively diagnosed; that this test appears to be useful in such cases, is confirmed by continued experiment with the Abderhalden technic in known malignancies. It is at least safe to say that there has been no test previously devised that runs so positive to a known condition of malignancy with so high a percentage of positive results. Further there is no test that runs so uniformly negative to all other conditions."

It is especially interesting to note that particularly in the early stages of cancer does this test seem to be particularly active. So much for the gastro-enterology and its problems.

If I have helped you to a greater appreciation of its involved physiological and pathological factors and suggested that it is through the study of these that the obscure troubles in the abdomen will find ultimately a clear and definite diagnosis with resulting intelligent treatment, this paper will have accomplished its purpose.

THE USE OF THE OMENTUM IN ABDOMINAL DRAINAGE.*

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In circumscribed abscess and in partially localized infected areas of the abdomen, we have all observed the important part the omentum plays in the walling off of infections. This and the adhesions formed, of course, is the *modus operandi* by which nature protects against the involvement of other structures and we have seen in many chronic cases the almost perfect result of this process—the life saving remedy which alone could save the pa-

6. The Production of Ulcer of the Stomach by Injection of Streptococci, by E. C. Rosenow, M.D., Chicago. (The Journal of the American Medical Association, Nov. 29, 1913).

*Read before the Benzie County Medical Society August 5, 1914.

tient. We never cease to marvel at the wonders of nature's surgery; so much so that in many of our so-called surgical cases we gladly allow nature to do the first, the life-saving operation in our acute cases, and the surgeon afterwards does the pain-saving operation. Perhaps at times to save life by eliminating possible future acute attacks in which he feels that nature will not be able to continue her readjustment, but more often to break up and reconstruct what nature has done, to adjust conditions for the better comfort of the patient, after nature has done her part in the emergency and also to relieve mechanical and functional disturbances which have resulted from these protective formations. Hence we see in this, as in other physiological actions on the body, that natural processes can not be improved on. To be sure, they can be assisted, just as we assist them in the administering of serums and vaccines and it is the object of this paper to show that we should always keep in mind these important changes when operating on our acute infected cases. There is often a tendency to overlook this most important process and to try to do by purely artificial means what nature will do in part for us.

For example, in the introduction of drains, a most essential part of our technic in pus cases, (for the proper placing and selection of drains often means the question of life or death) this is generally the case.

As we enter the abdomen and approach the infected area, and that very guardedly, whether it be a gangrenous appendix, pus tube, gall bladder or what not, we first note what nature has done; whether we have a complete circumscribed abscess which is nicely walled off and adherent to the parietal walls and surrounding structure, or whether we have a circumscribed abscess which is free from the surrounding peritoneum and structures; or, whether the infected area is not walled off and no protection from the surrounding structures, such as we often find with a gangrenous appendix which has or has not ruptured, nature not having had time or for some other reason not having formed the protective adhesions.

The next step which we take is essentially different, with different operators; but, I find that this step is the all important part of the operation and the method which I have used in all such cases appeals to me as the best. I believe that the routine system, as I have observed it, is to start packing around the part in which we are going to enter the infected area and after thorough packing to go on with the work, removing the involved parts, or using simple drainage as we see fit. This I used to do but not without the gravest apprehension on account of the danger of getting free pus

in the peritoneal cavity. At present I am using the omentum when I can get it for this purpose and packing as usual afterward. While this is somewhat more time-consuming, it is time well spent and according to the recent slogan "Safety First."

TECHNIC.

Tucking the omentum around the infected area and securing by a stitch or two with fine gut, either to itself in such a way it will stay *in situ*, or often by putting a stitch from the omentum through the lower portion of the infected mass, being careful not to puncture into an abscess cavity, is the safe guard in these cases and sometimes is the essential operation. When the omentum is not available I often use the parietal peritoneum in the same way, so that any free pus that may be liberated will lodge outside the abdominal cavity.

When this technic can be accomplished successfully I believe we can leave our patient in better shape and that we have assisted nature in doing what we can not do without her aid.

First; The procedure protects the rest of the abdominal cavity from free pus which would result in general peritonitis or secondary abscesses.

Second; It requires less packing and handling of bowels, which is always desirable.

Third; It requires a smaller incision.

Fourth; It assures us better drainage, and quicker drainage.

Fifth; It does away with too large a drain.

Sixth; It localizes any secondary hemorrhage.

Seventh; It causes less liability to the formation of undesirable adhesions which would later cause functional disturbances.

SUGGESTIONS IN PURCHASING AND DISPENSING OF DRUGS BY PHYSICIANS

E. H. FOUST.
ITHACA, MICH.

There may not be anything scientific about this paper. There may not be anything contained in it that everyone of you here does not know and perchance there may not be anything in it that shall do any of you any good, however that may be I am firmly impressed with one fact and that is, that we all are helped by thinking and talking over ordinary things together.

We all enjoy hearing a good scientific talk or paper but I am certain that we all also enjoy, to the same extent, hearing papers from our brothers which, although less scientific, are full of the experience and trials that we too have had to deal with and to learn how our brother

handles the same; and the outcome is oftentimes of even much more benefit than that bordering on the ultra-scientific or the case which one seldom sees.

Coming down a little closer to my subject, that of purchasing and dispensing of drugs by physicians, we approach a subject which touches every man engaged in the practice of medicine. Perhaps not the perscription writing physician quite so directly or to the same extent as the dispensing physician, but the evils and bad practices to which I shall refer affect us both.

The practice of pharmacy has been a gradual growth. In the olden times the pharmacist was unknown, the medicine man gathered his own remedies and prepared them. As time went on, it developed to the extent that the physician learned that the man who devoted his time to the preparation of drugs was of great advantage to him in two ways: first, by applying himself steadily to the one work, he learned to compound more scientifically and his mixtures were equally as efficacious and much more palatable. Second, the time formerly employed in compounding medicines was to better advantage used in his own profession.

Then, as time passed, large drug houses began to take the place of the individual worker until the time has now finally arrived when, I presume I would be safe in saying that, 99 per cent. of all the drugs which are found on the physician's and even the pharmacist's shelves today were compounded by the large drug houses in the city.

This is all right and as it should be for the large drug houses are doing a work today never equalled in any other line, when you come to think of the methods they employ in standardizing their preparations, both chemically and physiologically.

But, while all this good work is going on, another phase of the question has arisen, and because of the part taken in the development of the same, it has worked to the disadvantage of the physician, and has helped to lower the standard in which as a class he is held in many communities. I refer to the proprietary and secret nostrum business being pushed by the same, otherwise commendable, houses, but no one is to blame any more than the physicians themselves, for if every physician always fought these euphoniously and idiotically named preparations wherever and whenever they were mentioned to him by telling his questioner that they were proprietary preparations of which he knew nothing of their ingredients and *always and ever* absolutely refused to use or prescribe them, the influence brought to bear upon the public would be so great that no remedy of the kind would long survive; but, so long as physicians will prescribe them and use them and still work, oftentimes in the original bottle with the firm's

name blown in the glass with all the directions for taking and loud speaking advertisement on the table telling just what, but not how much of each ingredient is in the preparation, and the wonderful curative power each ingredient has, just so long will they live and contribute toward the evil of self-doping with proprietary medicine.

Now, brothers, I am not referring to "Host-eters Bitters," "Swifts Syphilitic Specific," more commonly known as "S. S. S.," "Lydia Pinkham's Pills for Pale People," etc. etc., but to the more eloquently advertised, clothed in a professional cloak and handled with a self-righteous air, such as; "Ovo-Ferrin," "Henry's Maizolithium," "Sal Hepatica," "Ergo-Apiol-Smith," "Neurosine," "Antiphlogistine," "Gray's Glycerine Tonic," "Anedemin," the medicinal trocar in dropsical effusion, "Fellow's Syrup of Hypophosphites," etc. etc.

True, many of these remedies or preparations may contain medicines of tried worth and value but if so, why not use them instead of using a preparation put up by some drug house telling you by the name what is in it, then through sheer kindness, and any physician should take it as an insult, tell you what it is good for and what doses you should use. For instance: "Ergo-Apiol" (Smith) puts on their wrapper in large letters at the top "Ergo-Epiol-Smith." Just below, "For amenorrhoea, dysmenorrhoea, menorrhagia, metrorrhagia, etc." Dose, one or two capsules three or four times a day; then another: "Anedemin," the medicinal trocar in dropsical effusion equally as valuable in the cause. "Indications: ascites, anasarca, cirrhosis, nephritis, valvular disease, bright's disease, or all dropsies resulting from renal, hepatic or cardiac disease." Listen, "50,000 physicians prescribe. Quick in action. Positive in results. An ideal cardiac tonic. Removes the effusion in the most obstinate case in thirty-six to forty-eight hours, etc. etc."

What are we as physicians thinking about to tolerate such statements in the medical journals for which we subscribe, to say nothing of actually using or prescribing such junk? I know a physician who writes a prescription for "Rexal's Nerve Tonic," "Rexal's Blood Purifier" and "Rexal's Cathartic Pills." I say I know, yes, because I have seen the prescriptions, but thank God, I do not know one in Gratiot county and I hope I never may.

Now there are two other points I wish to make: first in regard to the expense of many of these combinations. Even considering that you were to use them secretly not prescribing in the original bottles, you will find as a rule only one or two ingredients, if the amount is mentioned at all, present in sufficient amount to be of any therapeutic value. If you will count up the cost of these ingredients, in the very large majority of cases you will find that you can

make up the same amounts of therapeutic activity in your drug room for about ten cents on the dollar. If you don't believe me, figure it up as I have done for myself, out of some of the catalogues from some of the best drug houses. From the same houses you will find mixtures of stuff that although one might know to a reasonable certainty or be easily able to find out what to expect from a dose of one or two of the ingredients in the size given, only the good Lord himself could ever be able to figure out what effect or results to expect of the poly-pharmaceutical mixture and the only satisfaction one has, when he would come to use it, is that some brave and noble brother has tried it and found the size of dose that did not prove harmful, and you are advised to give the same dose.

In the next place I wish to say we all know there are many preparations made in which the drug used is mentioned; the amount of each in a dram, tablet or pill is put on the label, the number of drugs used are few and the result expected is quite plain if the house manufacturing the same is dependable. Concerning the use of these, I have no word of censure but I feel sure the time is rapidly coming to pass when simplicity in the use of drugs is going to be much more common, and even single remedies. If I am right in my belief, then we as a profession are advancing. We are gradually lifting ourselves from a guess to a certainty. We are using a well-chosen remedy to perform a certain definite work which it will do, generally, and the result is accomplished providing two things are true: first, that our diagnosis has been correct; second, that our drug is active or in other words has been obtained from a dependable source. For a good working, although pliable rule, it is well to have in mind drugs to meet certain indications and use them, keeping the number we use comparatively small and learn to use them well. This makes good doctors of us.

I believe the time is also rapidly coming when the average physician will look with pleasure to the coming of the representatives of physician's supply houses that offers him drugs and not compounded preparations. One other word I believe I ought to say in relation to the subject of self-drugging. This is a matter, as previously intimated, largely dependent upon the physician. The best way to stop it is to never tell a patient if possible what you are giving him. Keep the use and knowledge of drugs a matter of necessity to physicians, nurses and druggists and avoid curb-stone consultations. When asked your opinion of such and such a remedy, give indefinite reply, but above all *never* advise or prescribe proprietaries.

Case Reports

ECTOPIC GESTATION WITH RUPTURE INTO LARGE BOWEL.—REPORT OF CASE.

JAMES A. ATTRIDGE, M.D.

PORT HURON, MICH.

Miss. K., age 31, single; occupation housework, normal weight 135 pounds. Family history as obtainable has no special bearing on present condition of patient.

History.—Patient commenced to menstruate at age of 15, was regular, painless, 28 day variety, lasting three days, using three napkins daily. The early subjective symptoms began in January, 1913. Symptoms at that time were a feeling of langor, inaptitude for work, nausea, and vomiting at intervals, extending over a period of weeks. Up until May 6, 1913, her menstrual periods were regular but very scanty. On May 6, 1913, she was seized with cramps in right lower abdomen, and a profuse flow which followed alarmed her and she called her physician. The flow gradually ceased. On the same day in June she had a cramp with just a show of blood, and a feeling that she was smothering for lack of air. Since the slight show of blood in June she has not menstruated until the present time, December 15, 1913.

Symptoms.—On September 12th she had a sharp pain in the right lower abdomen. She was seen two days later by her physician, and treated at her home until November 15th when she was removed to the hospital. Since the cramp in September, and up until December 15th when I saw her in consultation, she gave a history of failing health with pain in the lower abdomen, and her chart showed that she had been and was still running a temperature of 99½ to 103. Her general appearance was that of marked anemia with prostration, such as is present with grave septic conditions of long duration. Her appetite was poor, bowels regular, pulse 120, temperature 100 F.; abdomen was enlarged up to the umbilicus, most marked on the right side. She was quite sensitive over the enlargement.

Examination.—Vaginal examination disclosed a mass in the right side of pelvis. The cervix was the only part of uterus which could be felt. It was very high and displaced to the right.

December 18th the X-Ray revealed what appeared to be fetal bones in the mass. That same day a tibia and other fetal tissue passed from her rectum. The urine proved negative, except for a marked indican reaction. Blood hemaglobin 20 per cent. Tallquist. Reds 1,590,000; whites 25,000, and marked Iodophilia.

Operation on December 19th.—Local anesthesia used until peritoneum was reached, when a very

small quantity of ether was given. The incision was made through the right rectus. When the mass was reached the products of decomposed fetus plus feces flowed freely from the wound. Examination of bones led to conclusion that the fetus had lived for a period of about seven months. When mass was removed a large fistula was found connecting the cavity and the large bowel near the sacral promontory. Drainage was established. Cultures from discharging wound showed colon bacillus and staphylococcus to be the predominating germs present.

Course.—Patient left hospital January 15th, 27

days after operation with wound and fistula practically healed. She has remained well since and has regained her normal weight and appearance.

The relative infrequency of cases of ectopic pregnancy rupturing into large bowel prompted me to report this case with appended history.

I wish to thank Dr. C. B. Stockwell of this city through whose courtesy this patient was referred.

Stewart Block.

PROPAGANDA FOR REFORM.

Robinol.—Robinol is a glycerophosphate mixture exploited by John Wyeth and Brother on the discarded theory that certain diseases are due to a loss of phosphorus from the body and that this phosphorus deficiency is best remedied by administration of glycerophosphates. There is no evidence that glycerophosphates when administered act differently than do inorganic phosphorus compounds. At all events, if phosphorus deficiency really occurs, it would be more rational to supply the needed phosphorus in the form of foods rich in phosphorus such as milk and eggs (*Jour. A.M.A.*, July 4, 1914, p. 49.)

Sevetol.—There was a time when physiologists thought that fats were absorbed into the blood in the form of a fine emulsion. It is now known that fat enters the blood after having been split into glycerol and fatty acid, the latter being, to a large extent, combined with alkalies in the form of soaps. Making use of the discarded theory Sevetol, put out by John Wyeth and Brother is presented to the profession with the claim that it is a very fine emulsion of fat and because of this is readily absorbed. While Wyeth and Brother would have physicians believe that Sevetol is readily absorbed and digested, it is evident that the amount of Sevetol which can be taken is limited not only by the power of assimilation but also by the power of digestion (*Jour. A.M.A.*, July 4, 1914, p. 49.)

Tooth Detergents.—While many tooth preparations are alkaline from the soap which they contain, it is probable that weakly acid preparations are to be preferred. As the antiseptics in tooth powders and washes do not remain in the oral cavity for any length of time, they cannot exert any beneficial antiseptic action. Antiseptics may even be harmful in that their periodical application may render the organisms which infect the mouth more hardy and vigorous (*Jour. A.M.A.*, July 4, 1914, p. 50.)

Dr. Jiroch Company, A Fraudulent Concern.—The federal authorities have declared the Dr. Jiroch Company, 533 S. Wabash Ave., Chicago fraudulent and denied it the use of the mails. This medical mail-order concern sent out a treatment which appears to have been the same no matter what the

symptoms reported by the victim. Examination of the four kinds of tablets sent out, in the A.M.A. Chemical Laboratory, showed these to contain ordinary tonic and laxative drugs (*Jour. A.M.A.*, July 11, 1914, p. 179.)

Lithium Salts in Uric Acid Diathesis.—There is no reliable clinical evidence that Lithium salts increase the excretion of uric acid by the kidneys, except as they exert the diuretic action. Experimental work has failed to show that lithium salts or the alkalies cause the absorption of deposited urates, gouty tophi, etc. The popular belief as to the action of lithia is founded on a misinterpretation of chemical facts. There is no reason why lithium salts should be expected to favor the solution of uric acid or urates in the tissues, the blood-serum or the urine (*Jour. A.M.A.*, July 11, 1914, p. 184.)

Strychnin and Caffein in Cardiovascular Disturbances.—Aided by a grant from the Council on Pharmacy and Chemistry, Dr. L. H. Newburgh has made a painstaking study of the action of strychnin and caffein on cardiovascular disturbances. He concludes that, since the blood-pressure is not low either in persons showing grave symptoms or pneumonia or of those dying from that disease, and since it has been proved that the vasomotor arcs are normal in animals after death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia. Strychnin does not improve or augment the work of the heart in persons suffering from broken cardiac compensation. It could not be shown that either strychnin or caffein stimulated the cardiovascular apparatus in any of the conditions studied (*Jour. A.M.A.*, July 25, 1914, p. 311.)

Malt Nutrine.—This product of the Anheuser-Busch Brewing Association was declared misbranded by the government authorities because the label claimed that it was a highly concentrated extract of malt, which was untrue. Malt Nutrine was found to contain 1.6 per cent. alcohol and extravagant therapeutic claims were made for it (*Jour. A.M.A.*, June 20, 1914, p. 1981).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, July 27, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

Reading of Papers

CASE OF TABES DORSALIS WITH A MARKED FAMILY HISTORY OF THE DISEASE. OBSERVATIONS ON THE ETIOLOGY OF TABES AND TREATMENT OF THE ATAXIA.

CARL D. CAMP, M.D.

(From the Clinic for Diseases of the Nervous System, University of Michigan.)

Tabes dorsalis, or, as it is often called, locomotor ataxia, is one of the commonest forms of disease of the nervous system. This patient shows certain instructive points which I think may be of interest.

The first point to which I would draw attention is the family history of the patient. His father died, at sixty-three, of uremic poisoning, but having had the symptoms of locomotor ataxia. Two of the patient's paternal uncles had locomotor ataxia. The patient's mother died of pneumonia, with no symptoms of ataxia. One brother has locomotor ataxia and is now under treatment (Swift-Ellis treatment) in a nearby town. Another brother died of paresis. A sister of the patient has tabetic symptoms. Two other sisters of the patient had goiter. The maternal grandparents died of old age and rheumatism. Six members of this family, in three generations, had locomotor ataxia and one other had paresis. As you know, this disease is at present considered to be due to an infection with syphilis. It seems probable, however, that there is at least one other factor to cause the development of tabes or paresis. What this other factor is we do not know, various

theories having been advanced. The most popular theory at the present time is that there are different strains of spirochete, and that some of these strains especially affect the nervous system. In the case presented this evening it would seem improbable that three generations of the same family could derive a syphilitic infection from the same source. In fact, it also seems improbable that the same strain of spirochete should be present through three generations unless the disease was inherited. The patient shows no signs of inherited syphilis, such as Hutchinson teeth, etc. It would seem to me much more likely that in this family there is a hereditary vulnerability of the nervous system to syphilis and that, as the different members of the family became infected, they promptly developed symptoms in the nervous system. There is a recent theory that the secondary factor in the development of the parasyphilitic disease is some disturbance in the secretion of a ductless gland, particularly the thyroid. In this connection it is interesting to observe that two sisters of the patient had goiter and the patient's daughter has a goiter. The literature on the subject may be found in an article by Dr. Hans Barken¹ who quotes Stern as saying that the necessary triad for the development of the metasyphilitic diseases of the nervous system tabes and paresis is: a "dispositio paralyticans," a luetic infection and a pathologic functioning of certain ductless glands. Inasmuch as any special bodily constitution is probably the result of the action of the ductless glands, the triad is in reality a question of only two factors, according to this view. Maloney² calls

1. On the Simultaneous Occurrence and Interrelation of Basedow's Disease and Tabes. Boston Medical and Surgical Journal, June 18, 1914.

2. Determinants of Tabes. New York Medical Journal, June 20, 1914.

attention to the probable importance of the chemical affinities of the tissues in the distribution of syphilitic lesions, and believes that these are influenced by the ductless glands.

The second point in connection with this case is that the patient absolutely denies syphilitic infection. He says that he has never had any signs of it and that a doctor at one time told him that he could not have syphilis without knowing it. This is an erroneous impression which seems to be widely prevalent. This patient is unquestionably infected; he has a double plus Wassermann reaction; and the diagnosis of tabes has been confirmed by several observers. I have had an opportunity of examining a number of cases of tabes and paresis in patients who strongly denied any knowledge of syphilitic infection. Among this number were several physicians, who might be expected to know, if anyone would, if they had syphilis. I have no reason to doubt their honesty when they say that they had never had any eruption, sore or other signs but the positive clinical symptoms and the blood and spinal fluid examinations showed the presence of syphilis beyond question.

This patient began having his symptoms of tabes in 1896, when he had sharp, shooting pains in various parts of the body. He noticed a difficulty in walking about five years ago and these have been the most prominent symptoms. The patient also shows Argyll-Robertson pupils, marked Romberg sign, absent knee and Achilles jerks, and loss of sense of motion and position in the feet. Some time after he noticed the disturbance in walking, he also noticed a continuous, very severe pain in the anterior portion of the dorsum of the foot. His physician told him that this pain was due to his disease. A layman, however, advised him to get an artificial arch for his foot; this he did, and he claims that he was very much relieved of the pain, and that for a year or more his gait steadily improved, without other treatment. It is well known that a hypotonicity present in tabes dorsalis leads to a flattening of the arches of the feet. This has two very important results: It not infrequently causes, or increases, tabetic pains; and it also interferes greatly, in fact it may be one of the chief factors of the difficulty in walking. It is highly important, therefore, in the treatment of these cases that flat arches or the turning in of the ankle should be attended to as a part of the treatment.

DISCUSSION.

DR. UDO J. WILE: Dr. Camp has brought out two very interesting questions which are of exceeding interest not only to neurologists but also to syphilologists. The first is the possibility of their being special strains of the spirochete which have selective action for one or another of the systems. There is

more than clinical evidence at the present time to bear out that contention. There is of course an analogy in bacteriology. One knows, for instance, that streptococcus of one form will give rise to erysipelas; and that a streptococcus which differs not in its morphology but simply in its cultural reactions will give rise to impetigo contagiosa; a third variety of streptococcus may give rise to severe throat infection, with peritonitis. Although we do not as yet know every thing concerning the life history of the spirochete, it seems probable that it will be found that there are certain strains which are more virulent than others and have an especial affinity for certain systems. It is a common clinical fact that patients infected from the same source will develop syphilis of one particular type. The point that Dr. Camp made that the vulnerability of the nervous system must be considered, is extremely important. There is one report, for example, from the German literature, of four men infected from the same woman, three of them developing general paresis and one tabes. The occurrence of central nervous system syphilis in husband and wife not uncommonly occurs and also seems to bear out this theory.

The spirochete seen in the microscope in the living state also show various phenomena which tend to show that they are different regarding their individual resistance. Certain spirochetes, allowed to remain under the dark-field under favorable circumstances will outlive the other spirochetes in the same field. When certain chemical substances are placed in contact with these spirochetes, certain of the spirochetes will perish at once, others within ten minutes, while others are resistant to even three hours indicating an individual difference in virulence and viability. There not only seems to be a certain predilection for the nervous system, but the mucous membranes are involved in certain cases over other systems. The bones are very frequently the seat of the infection, to the exclusion of the other systems.

With regard to the belief that the ductless glands may play some role in the production of the so-called para-syphilitic infections, it is interesting to note that with the exception of the testis, the glands of internal secretion are seldom the seat of active syphilitic symptoms. Active syphilis of the hypophysis is almost unknown; syphilis of the thyroid is extremely rare; syphilis of the ovaries is exceptionally rare, thus it is an interesting paradox that the glands of internal secretion, if they have any bearing on the production of late nervous syphilis, seem to have a high resistance to the attacks of the spirochete themselves.

DR. C. D. CAMP: I had hoped that Dr. Wile would bear me out in one point that I tried to make, i. e. that many of these cases come to the clinic with tertiary syphilis having no knowledge of having had primary or secondary lesions. Of course it is amply proved that there are different strains of the spirochete, that the different strains affect different parts of the body quite regularly. But I think that Dr. Wile loses sight of one factor when he would explain such a family history as this one by an infection by a particular brand of spirochete. It is possible that two generations of the same family might be infected by the same strain but three generations seems improbable.

A CASE OF MARKED INDICANURIA IN A PSYCHOPATHIC PATIENT.

JAMES HOWARD AGNEW, M.D.

(From the Department of Internal Medicine, University of Michigan.)

The presence of coloring substances in the urine has attracted attention from the earliest times and both Hippocrates and Galen speak of a blue pigment in the urine. Many subsequent observers have noted this but it was not until 1857 that Schunk noted the constant presence of indican in the urine, named it and considered it identical, with vegetable indican. In 1863 Hoppe-Seyler distinguished between the indican of the urine and vegetable indican and in 1873 Jaffé noted the increased output of indican in intestinal obstruction and subsequently its source from the indol of the large intestine was established.

Indol is produced by the bacterial decomposition of proteins containing the tryptophan group and most physiological chemists doubt that it is formed in the body in any other way. Its chief source is therefore from the colon where such protein decomposition is going on, but it may be formed in a putrid abscess anywhere in the body. The indol is absorbed, carried to the liver where it is oxidized to indoxyl, combined with sulphuric acid and potassium to form potassium-indoxyl-sulphate or indican in which form it is excreted by the kidneys. Indican itself is colorless and it is when we treat the urine with acid and an oxidizing agent that indigo-blue is formed which is soluble in chloroform and is extracted in this way.

Indican is not present in the urine of the new born and often times not during the first few months of life. As to its significance the observation has been made by clinicians that persons in whom a very strong indican reaction can be obtained in the urine over a long period of time often suffer from nervous or dyspeptic disorders and it has been thought that there is some casual connection between the absorption of indol from the intestine and the development of functional nervous or nutritional derangements. However, this has never been placed upon a firm scientific basis. Herter (1) has shown that indol administered subcutaneously causes fatigue, headache, depression, twitching and sleeplessness; however, this was only with much larger doses than could possibly be absorbed in the same period of time. On the other hand many persons with these complaints have but traces of indican in the urine while many apparently healthy persons excrete large amounts. Herter (1) explains this by regarding the liver as a screen and says that if it does not remove indol promptly from the circulation symptoms will arise and it is this varying abil-

ity of the liver to conjugate indol that gives rise to the contradictory findings.

The relation of constipation to indicanuria is not constant and to produce indicanuria constipation must cause stagnation of masses of undigested proteins or hydrolyzed proteins in the large intestines.

The amount of indican excreted by a healthy individual on a mixed diet is variously given at from two to ten m. g. per twenty-four hours. A high protein diet will cause an increase in indican excretion and a protein free diet a diminution, although Moraczewski (2) found just the opposite. According to the theory advanced by Metchnikoff the growth of the *Bacillus Bulgaricus* hinders the growth of putrefactive bacteria in the intestine, thus preventing the formation of toxins which when absorbed cause arteriosclerotic changes and hence old age. If this be true there should be a diminished excretion of indican since the putrefactive fermentation would be lessened. The general findings have been that the feeding of *Bacillus Bulgaricus* has but little influence upon indican output but in going over the literature I was struck by the fact that there were very few careful quantitative studies and it was therefore thought desirable to make such quantitative studies upon this patient.

The patient was in the service of Dr. Barrett at the State Psychopathic Hospital to whom I am indebted for the opportunity of making this study. The case is not presented from the standpoint of the clinical features but simply as a case of marked indicanuria. It will be sufficient to state that he was confused, generally depressed with occasional periods of excitement and was considered at the time to have some form of a toxin psychosis.

The patient C. F. male, aged 59, was admitted to the hospital Nov. 14, 1912 and died May 13, 1913. The history is practically negative, the present trouble of loss of strength, depression and worry dating from some family trouble occurring ten months previous to admission. The patient has lost thirty pounds in weight, is emaciated, but physical and neurological examinations were practically negative. At this time the patient had an achlorhydria, the stool was negative and he was placed on a finely divided diet with hydrochloric acid after meals. The urine was negative except for the constant presence of a few granular casts until on January 26 it was noted that upon boiling the urine with nitric acid it became a deep purple color. At this time he was referred to the Medical Clinic where it was found that this was due to a large amount of indican. On Feb. 3, the patient had a phenolsulphonephthalein of 69 per cent. and the urea nitrogen was .32 g. per 100 cubic centimeters of blood.

Twenty-four hour samples of urine were ex-

aminated daily and the indican estimated according to the method of Ellinger (3) which is briefly as follows:

A measured sample of the twenty-four hour urine is precipitated with 20 per cent. lead acetate and a measured quantity of the filtrate treated with an equal amount of Obermayer's reagent. The indigo-blue formed is repeatedly extracted with chloroform, the chloroform distilled off, the residue dissolved in sulphuric acid and titrated with a potassium permanganate solution whose oxidizing factor has previously been determined against pure indigo-blue. The results of these determinations together with notes on the diet and medication are shown in the table.

The plan of the test was four days of observation without in any way modifying the patient's diet or medication, followed by four days of active purgation with calomel and salts and another period of four days observation. This was then followed by four days during which the protein intake was greatly reduced and another period of three days with the original soft diet. The hydrochloric acid was then discontinued and three tablets of *Bacillus Bulgaricus* (Parke, Davis & Co.) were given after each meal for three days. After the lapse of three days the tablets were given again over a period of three days and a week later a flask of sterilized milk in which *Bacillus Bulgaricus* was subsequently planted was given to the patient on two days. The bacteria coagulated the milk and were present in pure culture producing a thick curd of not unpleasant taste. Quantitative estimations of indican were then continued at intervals and six weeks later daily feeding with 200 cubic centimeters milk cultures of *Bacillus Bulgaricus* were resumed and continued to the end of the observation which was twelve days before death. Toward the latter part of the observation the indican was estimated upon the combined urine of two successive days and where this has been done it is indicated by brackets. In these instances the amount of indican for any given day can be approximated by prorating according to the quantity of urine passed on that day.

It should be noted that the patient had been taking fifteen drops of dilute hydrochloric acid after meals since his admission to the hospital but that for six weeks previous to beginning the quantitative estimations he had taken no meat, his diet consisting of cereals, milk, potato, toast, eggs, custard, fruit, butter, sugar and olive oil at times.

It is seen that during the three months the patient was under observation there were many marked and sudden variations in the quantity of indican excreted for which there is no adequate explanation. However, there was a grad-

ual lessening of the amount excreted and the last few examinations gave amounts of indican at the upper limits of normal but very much less than the amounts first found. When we attempt to draw conclusions from any particular form of medication or diet we find it is impossible.

During the preliminary period of observation there were marked variations followed by a fairly definite diminished indican excretion while the patient was being purged, which was in turn followed by the excretion of the largest amount observed at any one time—.3718 g. In going over the literature rather superficially I have not come upon a case reported where so large a quantity was excreted. Wang (4) reports a case of tuberculous peritonitis in which there was a daily indican output of .260 g.

Upon the day following the excretion of this very large quantity of indican, less than one-quarter of that amount was excreted, and following this there was a gradual but definite decrease in the indican excretion, not markedly influenced by the very low protein diet nor by the administration of *Bacillus Bulgaricus* tablets. The feeding with milk cultures of *Bacillus Bulgaricus* however appeared to have some effect for subsequently to that there was but one instance in which the indican excretion was more than 35 m. g. and when the milk cultures were given daily the indican excretion ranged from 10 to 20 m. g.

That large quantities of indican were not in this patient's urine previous to the first time it was noted seems assured as fifteen urine examinations had been made during the three preceding months with negative results except for casts. It may be that this was simply a wave of indicanuria which quickly reached its height and slowly subsided.

Herter (1) found that in dogs injections of *Bacillus Bulgaricus* into the intestine caused a diminution of the intensity of the indican reaction of the urine. Moraczewski (2) found no change of indican output in patients fed with *Bacillus Bulgaricus*, nor did he find any relation between the indol of the feces and the indican of the urine.

At autopsy there was found a thrombophlebitis of the right renal, common iliac and femoral veins, embolism and thrombosis of the pulmonary vessels, purulent pneumonia, emphysema, general sclerosis, atrophy and passive congestion, and a cyst of the pituitary body.

It is impossible to draw any definite conclusions as to the effect of diet or medication upon the indican output from a single case and this is reported simply as a case of marked indicanuria.

Date	Amt. Urine in c. c.	Amt. Indican in grams	Diet	Remarks
1-31-'13	1550	.1023	Soft	Specific gravity 1011. Few casts. No albumin. Bowels regular.
2- 1-'13	1800	.1121	Soft	Specific gravity 1008. Hydrochloric acid after meals.
2- 2-'13	1500	.0697	Soft	Specific gravity 1006. Hydrochloric acid after meals.
2- 3-'13	1770	.1404	Soft	Specific gravity 1009. Hydrochloric acid after meals. Received Calomel grs. 2 and epsom salts, ounces 1.
2- 4-'13	840	.0313	Soft	Specific gravity 1017. Hydrochloric acid after meals. Received one ounce salts.
2- 5-'13	900	.0356	Soft	Specific gravity 1013. Hydrochloric acid after meals. Received one ounce salts.
2- 6-'13	1150	.0622	Soft	Specific gravity 1016. Hydrochloric acid after meals. Received one ounce salts.
2- 7-'13	1800	.0848	Soft	Specific gravity 1014. Hydrochloric acid after meals.
2- 8-'13	1325	.2088	Soft	Specific gravity 1011. Hydrochloric acid after meals, Stool 1.
2- 9-'13	1050	.3718	Soft	Specific gravity 1917. Stool, 1.
2-10-'13	1000	.0926	Soft	Specific gravity 1014.
2-11-'13	900	.0895	Soft	Hydrochloric acid after meals. Stool, 1.
2-12-'13	1400	.0724	Very low protein	Hydrochloric acid after meals. Stool, 1.
2-13-'13	1340	.0554	Very low protein	Hydrochloric acid after meals. Stool, 1.
2-14-'13	1440	.0981	Very low protein	Hy Hydrochloric acid after meals.
2-15-'13	700	.0705	Very low protein	Hydrochloric acid after meals. Very active.
2-16-'13	600	.0471	Light	Hydrochloric acid after meals. Stool 1. Not a 24 hour specimen.
2-17-'13	610	.0473	Light	Hydrochloric acid after meals. Only a 21 hour specimen.
2-18-'13	530	.0636	Soft	Stool 1.
2-19-'13	540	.0490	Soft	Received nine tablets B. Bulgaricus.
2-20-'14	975	.0603	Soft	Received nine tablets B. Bulgaricus. One stool.
2-21-'13	425	.0525	Soft	Received nine tablets B. Bulgaricus. One stool, not a 24 hour specimen.
2-22-'13			Soft	Much disturbed. Unable to collect urine until 2-25-'13.
2-25-'13	1000	.0458	Soft	Very confused.
2-26-'13	800	.0477	Soft	
2-27-'13	420	.0539	Soft	Received nine tablets B. Bulgaricus. Complete 24 hour sample.
2-28-'13	480	.0509	Soft	Received nine tablets B. Bulgaricus. Complete 24 hour sample.
3- 1-'13	760)	.0931	Soft	Received 7 tablets B. Bulgaricus.
3- 2-'13	620)			
3- 3-'13	1190)	.1157	Soft	
3- 4-'13	720)			
3- 5-'13	430)	.1085	Soft	Not a 24 hour sample.
3- 6-'13	980)			
3- 7-'13			Soft	Urine lost.
3- 8-'13	630)	.0992	Soft	Not a 24 hour sample.
3- 9-'13	560)			
3-10-'13	975)	.0760	Soft	Not a 24 hour sample. Milk culture B. Bulgaricus
3-11-'13	825)			
3-12-'13			Soft	Milk culture, B. Bulgaricus.
3-13-'13	370	.0176	Soft	Complete 24 hour sample. Marked twitching.
3-14-'13	550)	.0622	Soft	
3-15-'13	900)			

Date	Amt. Urine in c. c.	Amt. Indican in grams	Diet	Remarks
4-12-'13	600	.0706	Soft	Has grown much weaker. Is taking no Hydrochloric acid.
4-13-'13	440			
4-19-'13	610	.0571	Soft	27 hour sample.
4-21-'13	300	.0357	Soft	
4-22-'13			Soft	Has grown weaker. Marked twitching. Test for Indican in blood negative.
4-26-'13			Soft	Milk culture B. <i>Bulgaricus</i> .
4-27-'13	390	.0180	Soft	Milk culture B. <i>Bulgaricus</i> . 14 hour specimen of urine.
4-28-'13	500	.0182	Soft	Milk culture B. <i>Bulgaricus</i> . 22 hour specimen.
4-29-'13	920	.0185	Soft	Milk culture B. <i>Bulgaricus</i> .
4-30-'13	380	.0107	Soft	Milk culture B. <i>Bulgaricus</i> . 24 hour specimen.
5-1-'13	440	.0202	Soft	Milk culture B. <i>Bulgaricus</i> .

DISCUSSION.

DR. C. D. CAMP: This case is very interesting from the clinical standpoint. It is possible, I think, that many of the symptoms that the man showed were to be attributed to the cyst of the pituitary body which was unsuspected during life but was a very prominent feature in the autopsy findings. Whether disturbance of the pituitary body could have caused the indicanuria, it seems to me, is a very interesting question which might be further gone into.

DR. JAMES H. AGNEW: In regard to Dr. Camp's remarks, I am not so familiar with the clinical aspects of the case. I was interested particularly from the standpoint of the indicanuria. It has been very definitely proven that thyroid feeding will cause an increase in the indican output but I have seen nothing regarding the effects of pituitary extracts upon indican output.

It seems rather strange, however, if the pituitary body had anything to do with this, that he should have such a large excretion and then such a sudden falling off. I am inclined to believe that the feeding with *Bacillus Bulgaricus* had nothing to do with this and that it would have fallen off without medication. Furthermore, it would seem that from the fifteen previous urine examinations, if there had been any marked indicanuria, it would have been noted. I believe a very practical point is that a single sample of urine tested for indican is practically valueless and that a twenty-four hour specimen should be used.

DR. R. BISHOP CANFIELD: Do you suppose that approaching death had any thing to do with it?

DR. JAMES H. AGNEW: No; in approaching death with cardiac decompensation, the test for indican is unchanged. In uremia there is an increased excretion of indican and particularly indican in the blood.

REFERENCES.

1. Herter, C. A. Bacterial Infections of the Digestive Tract. Macmillan Co. 1907.
2. v. Moraczewski, W. Ueber den Mangel von Relation zwischen Harnindikan und Kotindol. *Archiv. für Verdauungskrankh.* 1908, XIV, 375.
3. Ellinger, A. *Zeit. f. physiol. Chemie.* 1903, XXXVIII, 190
4. Wang. *Festschrift für Salkowski* Berlin, 1904.

A CASE OF HYDROCEPHALUS.

ALBERT H. BEIFELD, M.D.

(From the Department of Pediatrics, University of Michigan.)

This baby was brought to the Pediatric Service yesterday and is shown here this evening merely to demonstrate the size of the head. The baby is 21 months old, normal birth and normal family history. While the child's head was believed to be rather large at birth, the real enlargement was not noted until after six weeks and from that time until now a progressive enlargement has been observed. There is nothing to account for this increase in the size of the head, although it is not uninteresting to note that in the first month of the infant's life it was exposed to tuberculosis, the patient being the landlady in the house where the child lived.

The circumference of the skull is 64 cm.; the normal measurements at this age, 21 months, being about 40 cm. It is interesting to note the marked degree of ossification of the skull. In most cases of hydrocephalus one expects a separation of the sutures and gaping of the fontanelles. In this case, however, the posterior fontanelle is almost closed, the anterior fontanelle measuring 9 cm. and the sutures firmly united. There is the usual pushing down of the eye-ball due to the forward and downward pressure upon the orbit. The reflexes are so markedly increased that the slightest touch will produce clonus. Lumbar puncture has not been done as we are having an apparatus made for the purpose of trans-illumination. With this we hope to observe the effect of puncture on the accumulation of fluid.

DISCUSSION.

DR. D. M. COWIE: A great many of these cases come to the children's clinic. The problem is how to treat them. If lues is an etiologic factor it is possible that treatment for this condition may be of benefit. Surgical interference has brought about

varying results. In not a few cases of hydrocephalus operation has proved a distinct benefit. The principle involved in the surgical care of these cases is drainage. This may be effected in several ways. If a case can be proved to be of the external type, drainage into the soft tissues of the head may suffice. Dr. de Nancrede operated one such case for me in this way. There was distinct drainage around the filagree of silver wire for a while. A second operation was advised but the patient passed from under our observation.

In the internal variety, drainage of the ventricles into the sinus or cisterna magnum has given encouraging results in several cases recorded in the literature. Simple tapping of the ventricles through the corpus callosum has been followed by relief in a few cases. A more complicated and extensive operation is that of drainage of the cerebro spinal fluid into the abdomen. This operation has to be done in two or three stages and is very difficult.

While the results following such operations on the whole have not been very encouraging I, nevertheless, believe that when we have such cases in private or hospital practices we should encourage operative measures. With improvement in operative methods and technic, as well as in methods of diagnosis it is not at all improbable that sooner or later something will be discovered to help certain groups of cases. There is certainly no medical treatment of any avail.

DR. BEIFIELD: In the shortness of time we have not had a report of the Wassermann. There is a belief that a large number of these cases are syphilitic. The child was treated with the inevitable protoiodid pills for quite a long time.

DR. R. BISHHOP CANFIELD: My experience in surgical treatment of these cases is limited to one case. In this case the patient's basal cystern was opened and drainage secured by means of a knotted silk ligature one end of which was passed through the dura and the other end carried downward under the deep neck muscle. We secured drainage for as long as the patient remained under observation and there were definite signs of improvement. The downward position of the eyes was somewhat improved. The child was able to feed itself solid food. It gained in intelligence. It developed several new words in its vocabulary, while under observation. It recognized its relatives and called them by some baby name, giving the relative always the same name. It showed therefore, signs of improvement. It seems to me that the greatest point is an early diagnosis, a diagnosis before the head has changed in its size so tremendously, and some definite drainage introduced before the ventricles have become so permanently dilated and the cortex so thin that there is no possibility of the child developing any mentality. It appears to me that with an early diagnosis, an early operation might be of service. There were one or two successful cases in which a gold tube has been introduced, one end into the torcular and the other end through the subdural space. In this way the pressure in the subdural space may be reduced to that of the torcular. The operation has been done a couple of times with some improvement.

A CASE REPORT.

HAROLD I. LILLIE, A.B., M.D.

(From the Otolaryngology Clinic, University of Michigan.)

The case I wish to report tonight is that of a young man, twenty-three years of age, who entered the Neurological clinic three years ago,

1910, complaining of inability to open his mouth or chew his food and of weakness in the arms and legs.

Family History.—Father has asthma, the mother is a very nervous individual, the maternal grandmother is eighty years of age and has senile dementia.

The previous history shows the patient to have had two rather severe accidents, one supposed to have resulted in cerebral concussion, from which he recovered completely. He denies venereal infection.

The present trouble started six weeks previously with pains in hips and legs, followed by muscular weakness becoming so pronounced that he was unable to walk. Pain and weakness developed in upper extremities.

Neurological examination, 1910, Dr. Camp: No absolute paralysis, no pain in muscle masses. Movements painful. Tactile sensations not changed. No pain with pressure over nerve trunks. All muscles react to faradic current. Tendon reflexes prompt. Anesthesia of conjunctiva. Physical examination, negative; urine, negative.

He was treated with static spark and three weeks later discharged, very much improved, and remained so.

His second admission was in December 1913, when he complained about stiffness of the back and pains from hips to knees. No ataxia; no trouble with sight or hearing; no vomiting.

Neurological examination, Dr. Camp: Conjunctiva anesthetic. No paralysis, atrophy or disturbance of sensation. There was a slight rigidity of spine, but no deformity. The rigidity was not absolute, however. This he says has developed so slowly he does not know when it could have started. It is variable. It does not affect the cervical region. He puts both arms above his head and holds them there with equal strength. Joints are negative. Wassermann, negative; urine, negative. Physical examination, negative.

The patient said that he had consulted a physician in Chicago for this same trouble and that after a careful examination, both physical and X-Ray, he was told he had arthritis deformans. His consultant recommended that his tonsils be enucleated.

Examination of the patient in Otology clinic revealed septic tonsils with enlargement of the anterior cervical glands. History showed repeated attacks of sore throat.

X-Ray examinations of spinal column, I will quote: "Bodies of the second, third, fourth and fifth lumbar well shown. Fifth is rather hazy and indistinct from superposition upon sacrum. There is no lippling, no opacities, no dislodgement or other evidence of disease of the centra. The posterior artifications are also normal.

We find no evidence of disease in this spine."

The patient was then transferred to the Otology clinic for tonsil enucleation, having been told his trouble would disappear if his tonsils were removed. The operation was performed under cocain anesthesia with very great difficulty. Although the patient said he experienced no pain, the instrument caused him to gag and cough and he would not keep his mouth open, despite the careful instructions. There was no post operative bleeding, and the next day he complained little of sore throat. On the third and fourth day he noticed his back was not so stiff. He apparently was delighted and was noticed in the ward bending over, in all directions. The movement became normal and patient was discharged.

This patient is interesting (1) because he is a type of hysterical patient which responds to well directed treatment. (2) Had he followed the advice of his Chicago consultant, the result would no doubt have been reported as a case of arthritis deformans cured by tonsil enucleation.

DISCUSSION.

DR. C. D. CAMP: I remember this patient very well because my attention was called to him recently. When I first saw him in 1910, the case showed nothing of special interest. As I remember, it was a case of hysterical paralysis of one or both arms. The condition was treated purely symptomatically, that is, by suggestion. The symptoms were so completely relieved that the patient left the hospital because he felt well. The patient returned some time later, three years, I think, and said that a diagnosis of rheumatoid arthritis of the spine had been made. An examination shortly after admission to the hospital pointed conclusively to the fact that the spinal trouble was also hysterical and that opinion was confirmed by his X-Ray examination. He was convinced that the spinal trouble would yield to a tonsilectomy and, inasmuch as he probably needed a tonsilectomy anyway, that seemed the most servicable way to treat him and he improved very rapidly after the tonsilectomy. Three or four days after, he showed me that he could touch the floor with his fingers without bending his knees. I think the point is that literature should be judged rather critically when we read accounts of minor operations being beneficial in arthritis or other obscure complaints.

A REPORT FROM THE CLINIC OF OPHTHALMIC SURGERY OF A SERIES OF OPHTHALMOSCOPIC STUDIES OF THE FUNDUS IN CASES OF NEPHRITIS.

DR. GEORGE SLOCUM.

Instructor in Ophthalmology, University of Michigan.

Long before the discovery of the ophthalmoscope it was known that nephritis is often accompanied by visual disturbances, and as early as 1836 John Bright noticed that such disturbances are sometimes the earliest observed symptoms. The pathological changes in the

retina were described postmortum by Turk in 1850 and by Virchow in 1855.

When in 1851 Helmholtz invented the ophthalmoscope, a new world of investigation was opened for the study of pathological changes in the interior of the eye. Before the time of Helmholtz's discovery many intraocular diseases remained more or less of a mystery, the changes produced by most of the intraocular diseases causing blindness being known only through histo-pathological study. With the discovery of the ophthalmoscope, the interior of the eye in all its living physiological activity was revealed and eager investigators commenced the study of the interior of the eye. The first published ophthalmoscopic studies of the retinal changes of nephritis were those of Heyman in 1856 and Liebreich in 1859. It was not a long time before the study of the fundus so fascinated a number of able men, that a great wealth of material was accumulated, and descriptions of the most careful and painstaking series of observations have constantly been added until it seems next to impossible to discover any conditions which have not been ably described by earlier observers. While the present series of observations were conducted with a full knowledge that the conditions studied have already been described in the minutest detail, accompanied in many instances by the most beautifully executed colored drawings and paintings, the study has been made in the hope of throwing more light upon the relation between the different types of nephritis and the associated ophthalmoscopic picture. It has often been stated and many believe that the type of ocular inflammation or degenerative process seen in certain general diseases varies with the type of histologic structure involved in the general process; for instance in lues when collagenous structures are invaded in the eye, is not the same class of tissues involved within the cranium; when the vascular structures are involved, may we not look for an intracranial involvement of the choroid plexus or pial tissue; or, in cases of neuroretinitis or papillitis where the brunt of the attack seems to be centered in the nervous structures, may we not be able to find that the changes are similar to those which are found in the interior of the brain or in the spinal cord? It has also often been observed that a relation seems to exist between the type of fundus changes found and the type of systemic condition having an etiological relation, as for instance in cases of nephritis. It was with the purpose of studying these relations in this class of cases that the present series of observations was undertaken. The main questions considered are first to what extent do the exudative and hemorrhagic retinal changes seen in the acute forms of nephritis correspond to the pathological changes found

in the kidneys? Second: Is there a constant or characteristic relation between the retinitis associated with parenchymatous nephritis and the pathological changes in the kidneys? Third: Can a characteristic relation be established between the vascular changes almost invariably accompanying the chronic interstitial type of nephritis and the vascular changes frequently seen in the retina? Fourth: What other relation may exist between the fundus changes and the pathological manifestations?

The familiar classical picture of albuminuric retinitis presents a glistening white change in the macular region having a radiating spoke like a star shaped arrangement, often associated with hemorrhages of varying types in the neighborhood of the temporal vessels or in the macular region. This type of retinitis is present in the late stages of about 30 to 50 per cent. of contracted kidneys. It is rare indeed that any condition of the retina develops having the typical features of this form of retinitis, that cannot be traced directly to kidney disease or hypertension. Such macular changes are degenerative in character, probably due to atrophic changes in the macula following the macular edema of an earlier stage. When we recall the radiating anatomical arrangement of the retinal elements in the macular area in Henle's horizontal layer, the fact that an edema, an exudate, hemorrhagic or inflammatory changes in this region take on a radiating character, as following the lines of least resistance is at once satisfactorily explained. Later atrophic changes would cause the radiating pathological process to become conspicuously white as well as star like in arrangement. There are a certain number of albuminuric retinitis cases which are characterized by small white dots and spots in the macular region not having a typical radiating arrangement. To determine, if possible, the type of vascular change present in these two conditions was one of the objects of this study.

Hemorrhages may be present sooner or later in practically all cases of albuminuric retinitis. Indeed, some of the permanent changes found in the retina are due to the failure of absorption of extravasated blood with later organization of fibrin and blood pigment changes. The appearance of the fibrin is at first fluffy, that is, immediately after absorption of migration of the blood pigment, resembling an inflammatory exudate; gradually changing through successive stages, finally flattened atrophic patches appear, remaining bordered, perhaps, by irregular patches or degenerated blood pigment which cannot be distinguished ophthalmoscopically from retinal pigment. Hemorrhagic changes, however, are present in many forms of retinitis not dependent upon kidney disease. That hemorrhages should be more likely to occur in cases of the interstitial type one might expect

when one remembers that vascular changes are such a prominent feature in the pathology of interstitial nephritis. The type of hemorrhages, other things being equal, would depend somewhat upon the type of vessels involved. When the fine capillaries are affected, associated hemorrhages in the retina would be more likely to be present in the outer vascular plexus of the retina. Such hemorrhages would usually be small, rounded in character, and because of the histology of the middle layers of the retina, would have a tendency to extend vertically rather than horizontally. The resulting hyaline or fatty changes lead to marked vertical changes associated with cystoid spaces filled with hyaline or fibrous material.¹ In the others where the small arterioles are involved, the hemorrhages would become prominent in the inner vascular plexus in the nerve fiber layer, and would follow the line of least resistance along the interfascicular clefts in the inner fiber layer and therefore assume a flame like shape. Still other hemorrhages and exudates occur between the lamina vitrea choroidea and the retina producing small local detachments. The larger hemorrhages are usually sub hyaloid, that is between the retina and the vitreous. Inasmuch as such hemorrhages are sometimes seen in cases presenting no discoverable systemic disturbance their diagnostic importance is not as well established.

Neuroretinitis, papillitis, or even choked disc are sometimes seen in kidney disease, more especially perhaps in acute types such as the acute nephritis of scarlet fever or in the nephritis of pregnancy in which the changes are often quite characteristic. In the more acute types large exudative spots of considerable size may appear, hemorrhages are relatively fewer, the retina is deeply edematous, becomes muddy, is locally detached, loses its transparency, and fine granular opacities are often present in the media. In the series of cases examined, the acute type is present in two cases only. Retinal changes associated with nephritis may be classified as follows: 1. Vascular changes; (a) Increased arterial tension as shown by arteriovenous compression, the veins being compressed by the more rigid overlying artery, resulting in local dilation of the vein distal to the compression. (b) Fine tortuosities of the arteries and veins, corkscrew vessels particularly in the macular region with or without small hemorrhages. (c) Degeneration of the walls of the arteries as shown by the broadening of the arterial reflex stripe, in endarteritis or thickening of the perivascular lymph sheathes, as seen in periarteritis, changes which often advance to the extent of the formation of the so-called silver wire vessels in which

1. Parson's Pathology P. 1298.

a portion of the blood stream is entirely obscured by the opaque degenerated vessel wall. 2. Neuro-retinitis, and optic neuritis with slight detachment of the retina in the neighborhood of the disc may be due more or less directly to toxic substances which have accumulated in the system because of imperfect elimination, or perhaps in some cases of choked disc to an increase of intracranial pressure. 3. Hemorrhagic retinitis, especially if bilateral and accompanied by exudative changes or edema. 4. Small white spots in the retina near the disc or in the macular region especially when bilateral and accompanied by other retinal changes. 5. Punctate retinitis in the macular region bilateral, especially when associated with edema or hemorrhages. 6. Glistening white spots in the macular region or between the macula and the disc having a radiating arrangement centered in the macula, a late change associated with chronic types. 7. Late changes such as secondary optic atrophy or retinal atrophy following a marked neuroretinitis or papillitis in one of the acute exanthemata or in the albuminuric retinitis seen in pregnancy.

8. Choroidal changes dependent upon vascular changes similar to those which take place in the retinal vessels associated with hemorrhages in the choroid which are sometimes present in albuminuric retinitis.

Vision is impaired in albuminuric retinitis in proportion to the size of area, and according to the locality involved in the pathological process. As would be expected, exudative and degenerative types in the macular region give the greatest amount of immediate impairment; inflammatory types may cause an acute impairment of vision which in severe cases becomes more marked as atrophic changes supervene.

I have divided the cases presented in this report into five classes:

- a. Chronic Interstitial Nephritis.
- b. Chronic Nephritis.
- c. Hypertension.
- d. Acute Nephritis.
- e. Miscellaneous.

They are tabulated below grouping the symptoms to facilitate comparison of the various features.

SERIES A.

Chronic Interstitial Nephritis.	Sex	Age	Vision O D O S	Ocular Findings.
1. C. G. 6-12-12. Medical Diagnosis: Chronic interstitial nephritis. Hypertension. Arterial sclerosis. Heart enlarged. Urine: Trace albumen, fine granular casts, B. P. 200 to 240. Symptoms: Headache, dyspnea; occasional edema of legs.	M	75	c. f. c. f.	O. D. Fusiform venous dilations; many rounded flame shaped hemorrhages, one large subhyaloid hemorrhage. Marked edema of the disc and retina; retinal detachment down and temporally. Choroidal vessels sclerosed O. S. Large detachment lower third of retina; exudates and macular changes. Lenses cataractous.
2. C. H. 10-22-12. Medical Diagnosis: Advanced chronic interstitial nephritis. Heart enlarged and hypertrophied. Urine: Large amount of albumen, hyaline and granular casts. B. P. 195 to 220. Symptoms: Extreme dyspnea on exertion; some edema of legs.	M	44	5/4 5/4	O. D. Periarteritis; endarteritis; arteries small; veins irregular in caliber. Retina edematous; subretinal exudates; hemorrhages and exudates in retina. Edema of macula. O. S. Silver wire artery; arteriovenous compression dilation. Hemorrhages in the retina rounded and flame shaped.
3. C. J. 12-2-12. Medical Diagnosis: Chronic interstitial nephritis. Uremia: Dilated heart; hydrothorax; radial and temporal vessels sclerosed. Urine: Large amount albumen, granular and hyaline casts. B. P. 150-190. Symptoms: Cheyne-Stokes respiration; dyspnea.	M	48	5/10 5/6	O. D. Marked endarteritis; arteriovenous compression dilation. Marked retinal edema; flame shaped hemorrhages; exudative changes. Minute exudative spots in the macula. O. S. Rounded hemorrhages, glistening white spots, a few exudative changes and slight pigment change in macula. Tortuosities of macular vessels; one macular vessel silver wire; O. S. same as in O. D.
4. L. H. 12-13-12. Medical Diagnosis: Interstitial nephritis chronic, hypertension. Urine: Albumen, large amount, granular casts. B. P. 205 to 175. Heart slightly enlarged. Symptoms: Dyspnea, headaches, nausea vomiting, dizziness, blurred vision.	F	43	6/6 6/6	O. D. Endarteritis; arteriovenous compression; veins tortuous. Macula edematous. Retina edematous. O. S. Disc edematous, otherwise the same as O. D.
5. B. J. 12-27-12. Medical Diagnosis: Mental derangement due to vascular change. Urine: Large amount albumen, granular casts. B. P. 210 to 250. Radials sclerotic. Mental confusion.	M	?	4/20 4/20	O. D. Discs edematous. Arteries contracted; endarteritis Choroid atrophic. No exudate, hemorrhages or atrophic changes.
6. C. D. 3-21-14. Medical Diagnosis: Chronic interstitial nephritis. Arterial sclerosis; myocardial insufficiency. Heart enlarged. Urine: No albumen, a few hyaline casts. B. P. 195 to 155. Symptoms: Headaches, nausea and vomiting, dyspnea, edema of hands and under eyes.	M	53	5/7 5/10	O. D. Periarteritis; endarteritis; arteriovenous compression dilation. One or two small hemorrhages near the macula. Two small exudates in retina; retina edematous. O. S. Much the same as O. D. also macula edematous but no exudates or hemorrhages.

SERIES A—Concluded.

Chronic Interstitial Nephritis.	Sex	Age	Vision O D O S		Ocular Findings.
<p>7. E. J. 4-9-13. Medical Diagnosis: Chronic interstitial nephritis. Tachycardia; uremia; heart enlarged; systolic murmurs radials sclerosed. Urine: Albumen, small amount and not always present, few casts; phenosulphon-test, elimination slow. B. P. 245 to 225, Hgb. 60 per cent. Urea in blood 2.02? Wassermann negative. Symptoms: Dizziness; occasional headache; dyspnea on exertion; swelling of ankles.</p>	M	45	5/10	5/4	<p>O. D. Disc edematous and congested. Marked endarteritis; slight perarteritis. Retina edematous especially toward the macula; rounded hemorrhages; flame shaped hemorrhages; atrophic retinal changes, white patches, many glistening exudative changes in the retina, small and scattered. Fine white dots and points in macula; exudates along walls of vessels. O. S. Disc edematous and congested. Perarteritis; marked endarteritis; silver wire arteries; vessels tortuous; arteriovenous compression dilation. Atrophic retinal changes, less marked than in O. D. Exudates less numerous but arterial changes more advanced.</p>
<p>8. E. N. 4-21-14. Medical Diagnosis: Chronic hypertension; nephritis. Urine: Albumen, faint trace, no casts; phenosulphon elimination rapid. B. P. 242 to 195 W. B. C. 11, 370 R. B. C. 4,690,000, blood urea .44 g. per liter. Symptoms: Headache; poor vision; pain in the heart.</p>	F	47	5/6	5/15	<p>O. D. Marked arteriovenous compression. Retinal edema. Central choroidal changes. O. S. Nerve head edematous; marked arteriovenous compression; retina edematous; some exudative spots above the macula. A few glistening white spots between the macula and the disc, central choroidal changes.</p>
<p>9. W. McG. 4-24-13. Medical Diagnosis: Arterial sclerosis; interstitial nephritis; hypertension; heart enlarged; radial thickened. Urine: No albumen, a few granular casts; phenosulphon elimination good. B. P. 170. Symptoms: Severe precordial pain.</p>	M	54	5/4	5/4	<p>O. D. Disc congested and edematous. Veins engorged; marked arteriovenous compression dilation; arteries tortuous, irregular in caliber and show endarteritis. Retina edematous. Macula edematous. O. S. Endarteritis more marked, otherwise practically same.</p>
<p>10. J. L. 6-9-13. Medical Diagnosis: Chronic interstitial nephritis, hypertension, cardiac insufficiency. Heart slightly enlarged, faint systolic murmur. Urine: Albumen, moderate amount, no casts; phenosulphon. elimination very slow. B. P. 212 to 180. Symptoms: Dyspnea on exertion.</p>	M	55	6/12	6/30	<p>O. D. Nerve head edematous. Several whitish areas of infiltration of the retina near disc border temporally. Arteries contracted. Retina edematous. Up and nasally from the disc, hemorrhages and whitish, areas of infiltration. Macula edematous. O. S. Disc edematous. Arteries contracted. Several fine hemorrhages and small deposits (old hemorrhages) in temporal retina.</p>
<p>11. J. S. R. 12-9-13. Medical Diagnosis: Chronic interstitial nephritis; chronic hypertension. Heart slightly enlarged; radial thickened; extra systoles. Urine: Definite trace albumen, many hyaline and granular casts; phenosulphon. elimination slow. B. P. 190 to 155. Blood urea .75 gm. per liter. Symptoms: Headaches, spots before eyes, short of breath, edema of feet.</p>	M	65	5/5	5/5	<p>O. D. Disc edematous. Arteries irregular in caliber; endarteritis; partial silver wire artery; marked arteriovenous compression dilation. Retina edematous. O. S. Disc edematous. Arterial changes same as O. D. only more general and advanced; arteriovenous compression dilation more marked. One small linear hemorrhage above disc. Corkscrew macular vessels; macula edematous.</p>
<p>12. C. W. B. 6-24-13. Medical Diagnosis: General arterial sclerosis; chronic nephritis, secondary. Heart slightly enlarged; systolic murmur; radials sclerotic. Urine: Definite trace albumen; many hyaline and granular casts. B. P. 190 to 160. Hgb. 62 per cent. Symptoms: Principally those of chronic gastritis.</p>	M	67	3/60	5/60	<p>O. D. Lenticular opacities. Disc edematous. Endarteritis; veins irregular in caliber. Retina edematous. O. S. Fine lenticular opacities; a few vitreous opacities. Disc edematous. Endarteritis; vessels irregular in caliber. Retina and macula edematous. One small silver wire artery nasally; arteriovenous compression dilation.</p>
<p>13. J. V. 8-23-13. Referred to Medical clinic; diagnosis chronic nephritis, arterial sclerosis, mitral regurgitation. Greatly enlarged heart, harsh systolic murmur. Urine: Albumen negative at first, later trace hyaline casts, bacteria. B. P. 200 to 170 Wassermann negative. Symptoms: Poor vision; swelling under eyelids; dyspnea on exertion.</p>	M	74	1/60 later. 1/60	6/60 3/60	<p>O. D. Slight lenticular opacity. Perarteritis; veins irregular in caliber; arteriovenous compression dilation. Very many flame shaped, linear and rounded hemorrhages generally small in size in both retina and macula. Exudative changes (old hemorrhages?); choroidal changes in the retina and the macula. Retinal edema; slight retinal detachment. Some glistening white spots in the macula. O. S. Corneal opacities. Fundus details not clearly seen. Some peripheral pigmentary retinal changes. Hemorrhages and exudates in the macula.</p>
<p>14. T. B. 9-25-13. Medical Diagnosis: Chronic interstitial nephritis; hypertension; hypertrophied heart, vessels sclerotic. Urine: Large amount of albumen with hyaline and granular casts; phenosulphon elimination slow. B. P. 195 to 180 W. B. C. 8,500. R. B. C. 3,730,000. Blood urea .89 gm. per liter. Wassermann negative. Symptoms: Failing vision; headaches; dyspnea on exertion; edema of the ankles.</p>	M	43	5/20	5/30	<p>O. D. Disc swollen and edematous, congested. Veins engorged; arteries small; endarteritis. Retina congested, edematous and contains several hemorrhages and exudates. Hemorrhages in the macula typical; partial radiating glistening white macular star. O. S. Disc hyperemic, swollen 1½ to 2 diopters. Endarteritis. Many hemorrhages. Many minute white spots about the disc. Macular hemorrhage; glistening white macular spots, slightly radiating.</p>

SERIES A—Continued.

Chronic Interstitial Nephritis.	Sex	Age	Vision O D O S		Ocular Findings.
<p>15. F. L. 12-3-13. Medical Diagnosis: Chronic interstitial nephritis; hypertension; arterial sclerosis. Heart enlarged, systolic murmurs. Urine: Considerable amount albumen with hyaline and granular casts; phenosulphon elimination poor. B. P. 270 to 220. Urea .72 gm. per liter. Symptoms: Vomiting in A. M.; dyspnea on exertion; W. B. C. 7,750, R. B. C. 4,810,000.</p>	M	50	5/12	5/15	O. D. Disc swollen 4 diopters, swelling extending some distance about the disc. Vessels are tortuous; endarteritis; periarteritis; arteriovenous compression. Many hemorrhages and exudative spots. O. S. Practically the same as O. D. in every respect.
<p>16. W. L. 1-29-14. Medical Diagnosis: Chronic interstitial nephritis; hypertension. Heart enlarged, systolic murmur; mitral insufficiency. Urine: Considerable albumen with granular casts. B. P. 200 to 225. Blood urea .82 gm. per liter. W. B. C. 5,100, R. B. C. 4,630,000. Symptoms: Dizziness, loss of consciousness, dyspnea on exertion, edema of the ankles.</p>	M	63	5/6	5/6	O. D. Disc swollen 2 diopters. Arteries irregular in caliber; endarteritis; arteries contracted; arteriovenous compression. Veins edematous. Macular vessels tortuous; macula has granular changes. O. S. Disc edematous. Vascular condition the same as O. D.

SERIES B.

Chronic Nephritis.	Sex	Age	O D O S Vision		Ocular Findings.
<p>1. G. M. 12-12-12. Medical Diagnosis: Chronic nephritis; secondary contracted kidney, interstitial type. Heart enlarged. Urine: Albumen, large amount; phenosulphon. elimination slow. B. P. 250 to 216. Symptoms: Headaches; short of breath; vomiting; edema lids and legs.</p>	F	26	5/7½	5/7½	O. D. Nerve head swollen 4 diopters. Hemorrhages about the disc. Marked periarteritis; arteriovenous compression dilation. Retina edematous in which tortuous veins are embedded; veins engorged. Macular vessels cork screw like; beginning star shaped figure. O. S. Condition practically same as O. D., swelling same.
<p>2. W. H. M. 1-16-13. Medical Diagnosis: Subacute parenchymatous nephritis. Heart enlarged. Urine: Large amount albumen, granular casts; phenosulphon. rather rapid elimination. B. P. 150. Symptoms: Pain in the back; nervous, restless.</p>	M	44	5/6	5/6	O. D. Macular region slightly granular otherwise negative. O. S. Slight periarteritis and endarteritis. Macular vessels slightly tortuous; macula slightly granular, otherwise negative.
<p>3. S. B. G. 3-10-13. Medical Diagnosis: Chronic nephritis. Heart enlarged; systolic murmur, radials thickened. Urine: Trace albumen, granular casts; phenosulphon. rather rapid elimination. B. P. 160 to 190. Symptoms: Markedly sleepy, some dyspnea on exertion, slight edema of legs.</p>	M	48	5/7½	5/7½	O. D. Disc congested edematous. Veins engorged, arteries tortuous; perivasculitis; arteriovenous compression. Retina edematous. Some slight choroidal changes. O. S. One large retinal hemorrhage, subhyaloid, otherwise same as O. D.
<p>4. A. S. R. 3-20-13. Medical Diagnosis: Chronic nephritis, secondary contracted kidney (interstitial type). Heart enlarged, systolic murmur. Urine: Large amount albumen, granular and hyaline casts; phenosulphon. rather rapid elimination. B. P. 225 to 186. Marked edema over the whole body, dyspnea at night, palpitation.</p>	F	46	5/5	5/4	O. U. Retina slightly hyperemic. A few scattering minute white points in the macula. Possibly slight endarteritis.
<p>5. J. C. 4-2-13. Medical Diagnosis: Acute exacerbation of chronic nephritis. Heart enlarged, radials sclerosed. Urine: Albumen trace, few hyaline casts; phenosulphon. elimination moderately retarded. B. P. 168 to 142. W. B. C. 12,700, R. B. C. 4,200,000. Wassermann negative. Urea blood .68 gm. per liter. Symptoms: Headaches intense, dizziness, dim vision, nausea and vomiting.</p>	M	50	6/15	6/12	O. D. Disc swollen 1. D. Veins engorged and tortuous and irregular in caliber; arteriovenous compression dilation. Retina edematous; small hemorrhages below macula; corkscrew vessels in macula. O. S. Disc swollen 3 diopters. Veins markedly tortuous, engorged and irregular in caliber; arteriovenous compression dilation. A few glistening white spots in the macula. Endarteritis of the central artery. Edema of the macula O. U.
<p>6. A. M. N. 4-4-13. Medical Diagnosis: Chronic nephritis, late stage. Cardiac hypertrophy, mitral regurg., systolic murmur, capillary pulse. Urine: Large amount albumen, granular casts; phenosulphon. very slow elimination. B. P. 180 to 204 W. B. C. 25,700, R. B. C. 4,400,000 Hg. 55 per cent. Blood urea high .80 gm. per liter. Symptoms: Nausea, vomiting, dyspnea palpitation, edema legs and feet. (Died in ten days.)</p>	M	47	6/5	6/5	O. D. Periarteritis; periphlebitis; vessels tortuous; marked endarteritis; arteriovenous compression. Retina edematous; several small hemorrhages; retinal sclerotic change above macula. Macula granular and edematous. O. S. Marked perivasculitis; arteries very tortuous; endarteritis, arteriovenous compression. Retina hyperemic marked edema. Macula edematous with beginning sclerotic changes.

SERIES B—Concluded.

Chronic Nephritis	Sex	Age	Vision O D O S		Ocular Findings.
<p>7. D. D. Van A. 4-4-13. Medical Diagnosis: Chronic nephritis. Cardiac insufficiency, enlarged heart, extra systolic murmur. Urine: Large amount of albumen, fine granular and hyaline casts; phenosulphon. very slow elimination. B. P. 170 to 155. Blood urea .38 gm. per liter. Wassermann negative. Symptoms: Nausea and vomiting; dyspnea on exertion. Palpitation. (Died in 3 mo.)</p>	M	58	5/5	5/4	O. D. Vessels tortuous. Retina edematous; many small glistening subretinal spots in macula. Macula edematous; a few fine central choroidal changes. O. S. Disc edematous. Large flame shaped hemorrhage below and nasally. All the vessels contracted and tortuous; arteriovenous compression dilation. Macula edematous and granular; whitish subretinal spots in macula. Choroid granular below macula.
<p>8. A. L. G. 4-16-13. Medical Diagnosis: Chronic parenchymatous nephritis (mild.) Urine: Albumen, small amount present, hyaline and granular casts; phenosulphon. elimination very good. W. B. C. 15,300, R. B. C. 4,100,000 Hgb. 80 per cent. Symptoms: Headaches, sleep.</p>	M	29	5/5	5/5	O. D. Slight endarteritis; veins somewhat engorged, perivasculitis. Retinal edema; arteriovenous compression. O. S. Disc edematous. Practically the same as O. D.
<p>9. W. W. 4-28-13. Medical Diagnosis: Chronic nephritis; cardiac insufficiency; marked anemia. Heart enlarged, systolic murmur; radials slightly thickened. Urine: No albumen, few granular casts; phenosulphon. elimination very slow. B. P. 190. W. B. C. 12,150 R. B. C. 3,450,000 Hgb. 27 per cent. Blood urea .53 gm. per liter. Symptoms: Dizziness, blurred vision abdominal pain, diarrhea, edema of legs dyspnea on exertion.</p>	M	58	5/5	5/12	O. D. Disc swollen and edematous. Marked arterial and venous pulsation; veins engorged and irregular in caliber; arteriovenous compression. Retina edematous. Cork screw macular vessels; macula edematous. Diffuse choroidal changes in periphery. O. S. Disc slight edematous. Veins irregular in caliber; arteriovenous compression dilation, endarteritis. Retina slightly edematous.
<p>10. J. E. M. 7-14-13. Medical Diagnosis: Chronic parenchymatous nephritis, secondary contracted kidney, unemia. Heart enlarged. Urine: Large amount of albumen, no casts; phenosulphon. no elimination in 2 hours. B. P. 160 to 148. Blood not examined. Symptoms: Dyspnea with cough, eyes puffy in A. M., edema of ankles.</p>	M	24	5/6	5/6	O. D. Disc edematous with exudates; disc swollen about 1 diopter. Marked endarteritis and periarthritis. White spots about the disc (remains of old hemorrhages.) Retina edematous. Typical radiating white star like figure in the macula. O. S. Disc markedly edematous, swollen 1 diopter. Arteries irregular in caliber; marked endarteritis and perivasculitis; arteriovenous compression dilation. Many minute mottled whitish changes in the retina between the disc and the macula where they have a radiating arrangement. Retina edematous.
<p>11. J. A. T. 7-31-13. Referred to Medical clinic; diagnosis: Chronic nephritis; hypertension. Heart enlarged; emphysema of lungs. Urine: Albumen present with granular and hyaline casts. B. P. 180 cyst. 140 dias. Symptoms: Dizziness; dyspnea on exertion.</p>	M	43	5/4	5/4	O. D. Disc is edematous. Arteriovenous compression. Retina and macula edematous. O. S. Periarthritis; arteriovenous compression; exudates near superior nasal vessels. Retina edematous.
<p>12. N. B. 2-12-14. Referred to Medical clinic. Diagnosis: Diabetes mellitus; chronic parenchymatous nephritis. Enlarged heart. Urine: Considerable albumen and some sugar. B. P. 170. Symptoms: Excessive thirst; dyspnea on exertion; swelling of feet.</p>	F	63	1/60	5/20	O. D. Nearly mature senile cataract, fundus reflex, no details. O. S. Incipient cataract. Disc congested. Arteries contracted; arteriovenous compression dilation marked. Fundus edematous. Numerous hemorrhages. Portion of radiating white spot in macula and down.

SERIES C.

Hypertension	Sex	Age	Vision O D O S		Ocular Findings.
<p>1. M. C. 12-19-12. Medical Diagnosis: Hypertension. Urine: Albumen, negative, no casts. B. P. 210 to 140, systolic heart murmurs. Symptoms: Dizzy spells; unconscious spells; headaches; dyspnea on exertion; edema of lids and ankles.</p>	F	48	5/5	5/6	O. D. Disc hyperemic. Retina hyperemic and edematous; one small hemorrhage. Arteriovenous compression slight endarteritis. Small exudate in macula. O. S. Disc more hyperemic. Macula edematous. Endarteritis; tortuous arteries and veins; no hemorrhage; one exudative change below macula (old hemorrhage?)
<p>2. J. R. 12-30-12. Medical Diagnosis: Chronic hypertension. Urine: Albumen, faint trace, few hyaline casts. B. P. 210 to 160. Heart enlarged, systolic murmurs. Symptoms: Headaches; dyspnea; ankles edematous.</p>	F.	59	5/20	5/20	O. D. Incipient cataract. Discs congested. Smaller vessels show silver wire characteristics; arteriovenous compression dilation marked. Veins markedly tortuous. Retina edematous. Scattering minute choroidal changes. O. S. two small flame shaped hemorrhages near the macula; macula edematous, otherwise practically the same as O. D.

SERIES C—Concluded.

Hypertension	Sex	Age	Vision O D O S	Ocular Findings.
<p>3. S. N. 4-10-13. Medical Diagnosis: Hypertension (chronic nephritis?) Heart enlarged, radial slightly thickened. Urine: No albumen nor casts. Phenosulphon. elimination fair. B. P. 188 to 154. W. B. C. 8,300, R. B. C. 4,940,000. Symptoms: Dizziness, vomiting and nausea A. M.</p>	M	49	6/20 6/20	O. D. Disc edematous extending below into edematous area in retina in which inferior temporal artery is buried. This area is elevated about 3 D, probably slight detachment. Whole retina hyperemic and markedly edematous. Macula edematous. Localized chorio-retinal change down and temporally. O. S. Periarteritis. Retina congested and markedly edematous. Macula edematous. General characteristics about the same as O. D. Appearance of fundus somewhat resemble leukemic retinitis.
<p>4. W. J. M. 5-22-13. Medical Diagnosis: Hypertension; arterial sclerosis; prostatic hypertrophy. Radial thickened. Urine: No albumen, hyaline and granular casts. Phenosulphon. elimination good. B. P. 180. Symptoms: Patient disorientated, poor memory.</p>	M	57	5/7½ 5/7½	O. D. Many vitreous opacities. Disc congested and edematous. Veins engorged, somewhat tortuous and irregular in caliber; arteriovenous compression dilation; marked endarteritis. Retina edematous; several white spots in the retina irregularly arranged mostly bordering the macula. Small hyaline dots in the macula; macula edematous. O. S. Disc edematous and hyperemic. Endarteritis; some perivasculitis; arteriovenous compression dilation.
<p>5. A. McD. 5-22-13. Medical Diagnosis: Chronic hypertension; arterial sclerosis. Cardiac arrhythmia, extra systole. Radials beaded; brachials sclerotic. Urine: No albumen, no casts. B. P. 235 to 170. Symptoms: Vertigo.</p>	M	78	5/20 5/7½	O. D. Lenticular opacities. Disc edematous. Veins irregular in caliber. Retina markedly edematous. Macula edematous. O. S. Arteriovenous compression dilation. Retina edematous. Macula hyperemic and granular.
<p>6. T. A. S. 10-22-13. Medical Diagnosis: Hypertension; arterial sclerosis; chronic nephritis. Enlarged heart, systolic murmur. Urine: Albumen, negative; hyaline casts; phenosulphon. elimination fair. B. P. syst. 232, diast. 185. Wasserman negative. Symptoms: Unconscious spells; headache; some dyspnea on exertion. W. B. C. 9,650, R. B. C. 4,810,000.</p>	M	40	5/5 5/5	O. D. Disc hyperemic. Veins engorged and tortuous, periarteritis, endarteritis; arteriovenous compression dilation. Retina edematous; area of retinal change with swelling near disc; localized detachment. White spots above the disc and the superior macular region. Two small linear hemorrhages. O. S. Disc swollen 1 diopter, edematous and hyperemic. Perivasculitis; small hemorrhage near the disc; veins engorged; temporally the vessels are tortuous; arteriovenous compression dilation. Retina edematous, some scattering hemorrhages and old hemorrhagic areas. Macula edematous.
<p>7. B. L. 1-11-14. Referred to Medicine. Medical Diagnosis: Myocardial insufficiency; hypertension; arterial sclerosis (chronic interstitial nephritis?) Heart enlarged. Urine: Slight trace albumen, sp. gr. 1006. B. P. 200. Symptoms: Headache; vomiting; dyspnea on exertion.</p>	F	55	6/60 5/20 W. C. 6/60 6/10	O. D. Disc edematous. Endarteritis and periarteritis; vessels tortuous; arteriovenous compression. Many small exudates and hemorrhages most numerous in the macula; macula edematous. O. S. Disc edematous. Veins engorged; arteriovenous compression dilation. Old thrombosis of inferior temporal veins, walls showing only as atrophic thin white lines, branches traceable. Some sclerotic changes in choroidal vessels.

SERIES D.

Acute Nephritis.	Sex	Age	Vision O D O S	Ocular Findings.
<p>1. W. H. 3-13-13. Medical Diagnosis: Acute nephritis. Paralysis from anterior poliomyelitis, attack 4 years ago. Rapid heart. Urine: Albumen, present; no casts. B. P. 125. W. B. C. 14,500, R. B. C. 4,600,000 Hgb. 75 per cent. Symptoms: Has spots before eyes and headaches.</p>	M	19	5/4 5/4	O. D. Nerve head congested and edematous. Marked perivasculitis; veins engorged; arteriovenous compression dilation. Mucula edematous. O. S. Disc more edematous. Some endarteritis; small veins tortuous. Condition practically the same as in O. D.
<p>2. M. J. 6-3-14. Medical Diagnosis: Acute nephritis following mastoid operation for mastoiditis and sigmoid phlebitis. Urine: Normal before operation; after operation, large amount of albumen, granular and hyaline casts. Blood cultures: Streptococcus bacteremia. W. B. C. 14,500, 87 per cent. polynuclears. Septic temperature for some time after operation. Recovering; urine now negative.</p>	F	9	5/5 5/5	O. D. Disc swollen and edematous. Veins engorged and tortuous; arteries contracted; slight arteriovenous compression. Retina edematous. O. S. Practically the same as O. D.

SERIES E.

Miscellaneous Retinal Conditions Suggesting Nephritis	Sex	Age	Vision O D O S		Ocular Findings.
1. L. F. 3-20-13. Medical Diagnosis: Secondary anemia. Heart: hemic murmur. Urine: Albumen, negative, casts, negative. B. P. 170-180. R. B. C. 3,200,000, W. B. C. 3,900 Hgb. 39 per cent. Has recurrent uterine hemorrhages. Is weak.	F	49	5/6	5/6	O. D. Periarteritis and endarteritis; veins irregular in caliber; arteriovenous compression dilation. Retina hyperemic and edematous; some localized sclerotic retinal changes below macula. Macula edematous. O. S. Sclerotic retinal changes above and below the macula, also nasally. Slight choroidal changes, otherwise does not differ from O. D.
2. J. H. 3-25-13. Medical Diagnosis: Abdominal adhesions, hemorrhoids. Urine: No albumen, no casts. B. P. 155 to 180. Symptoms: Pain in stomach, nausea and vomiting. (Died in hospital).	M	49	5/5	5/5	O. D. Slight periarteritis; slight endarteritis; veins engorged; arteriovenous compression dilation. Few glistening spots in the macula (hyaline, subretinal). O. S. Practically the same as O. D.
3. A. P. 4-12-13. Medical Diagnosis: Reflex vomiting, enlarged tender uterus, right ovary enlarged. Urine: No albumen, no casts. Phenol-sulphon. elimination rather slow. B. P. 180 to 150. W. B. C. 10,800, R. B. C. 3,930,000, Hgb. 67 per cent. Symptoms: Dizzy; nausea and vomiting; edema of face and eyelids; voice hoarse; dyspnea at night.	F	48	5/4	5/4	O. D. Retina edematous. Some irregular white spots above the macula; macula edematous. No marked vascular changes. O. S. Arteries slightly contracted; arteriovenous compression dilation. Small white spots in the retina nasally.
4. A. M. B. Medical Diagnosis: Chronic Bronchitis and emphysema of the lungs. Urine negative. B. P. 135. Wassermann negative.	M	75	2/60	2/60	O. D. Lenticular opacities. Disc edematous. Endarteritis; arteriovenous compression. Many exudative spots in the macular area; subhyaloid hemorrhage between the disc and the macula. O. S. Lenticular opacities. Disc edematous. Choroid retinal changes in the macula. Retina edematous. Atypical.

Features	Total	%	A Chronic interstitial nephritis	B Chronic Nephritis	C Hypertension	D Acute Nephritis	E Miscellaneous
Total cases	41	100	16...39%	12...29%	7...17%	2...5%	4...10%
Male	29	71	13...81%	9...75%	4...57%	1...50%	2...50%
Female	12	29	3...19%	3...25%	5...43%	1...50%	2...50%
Age averages 45			43 to 75-55	24 to 63-45	40 to 78-57	9 to 19-14	48 to 75-55
Vision			c. f. to 5/4 1 leucoma	1/60 to 5/4	6/60 to 6/6	5/5 to 5/4	2/60 to 5/4
Opacities of media			3 cataracts	2 cataracts			1 cataract
Edema of the disc	28		11	7	7	2	1
Congestion or slight swelling of disc	10		3	3	2	2	
Choking of disc I D, or more	7		3	3	1		
Periarteritis	14		3	6	3	1	1
Endarteritis	25		11	6	5		3
Endarteritis of the central artery	1			1			
Irregular, tortuous or contracted arteries	23		9	9	3	1	1
Silver wire arteries	6		5		1		
Cork screw macular vessels	4		1	3			
Arteriovenous compression	10		4	3	1	1	1
Arteriovenous compression dilation	24		8	6	6	1	3
Veins engorged or tortuous	14		1	7	2	2	2
Periphlebitis	3			3			
Venous thrombosis	1				1		
Hemorrhages	21		10	6	4		1
Exudative and other retinal changes	20		11	2	5		2
Edema of the retina	33		14	9	6	1	3
Detached retina	4		1 double				
Edema of macula	23		2 1 localized		2 localized		
Radiating or star shaped macular changes	4		7	6	7	1	2
Other macular changes	12		1	3			
Choroidal changes	6		4	4	2		2
Choroidal vessels sclerosed	1		3	3			
Inflammatory characteristics	13		1	5	2		
Atrophic characteristics	6		6	3	1		

Taking up the ophthalmoscopic notes we find that edema was noted twenty-eight times in the disc, thirty-three times in the retina, and twenty-three times in the macula, and

that it was found in all the types of the cases examined, though relatively most commonly in interstitial nephritis in which vascular changes are most prominent and nearly as frequently in

the cases of hypertension. Its relation to the blood pressure does not appear, as the B. P. was high in nearly all the cases examined. However, both acute cases show edema and they were cases of low B. P., and edema was present in the case of bronchitis and emphysema in which the B. P. was only 135.

Congestion or slight swelling of the disc was present in ten cases and rather more often in the cases in which elimination was lessened and the blood urea increased. This feature was quite marked when the disc was swollen 1 diopter or more as it was in seven cases.

Of the cases of interstitial nephritis, one disc was swollen one and one-half to two diopeters in which the elimination of phenosulphonephthalein was retarded and the blood urea .89 gm. per liter, W. B. C. 8,500, R. B. C. 3,730,000. In the case with the disc swollen two diopeters in blood urea was .82 gm. per liter, W. B. C. 5,100, R. B. C. 4,630,000; in the case of swelling of the disc 4 diopeters the phenosulphonephthalein elimination was much retarded and the blood urea .72 gm. per liter, W. B. C. 7,750, R. B. C. 4,810,000. All these cases showed considerable albumen and casts. Four other cases of choked disc, papilledema, were found, three in chronic nephritis, and one in hypertension. In the chronic nephritis case in which the disc was swollen four diopeters, the phenosulphonephthalein elimination was much retarded, the blood urea .71 gm. per liter, the W. B. C. was 11,200, R. B. C. 3,000,000. In the case swollen 1 diopter and 3 diopeters the phenosulphonephthalein elimination was retarded and the blood urea was .68 gm. per liter; the W. B. C. count was 12,700, R. B. C. 4,200,000. In the other case in which the disc was swollen one diopter unfortunately no blood test could be found, but there was no phenosulphonephthalein elimination in two hours. The quantity of albumen was considerable in each case. In the case of hypertension with a swelling of the disc amounting to one diopter the phenosulphonephthalein elimination was retarded, the blood urea not recorded, W. B. C. 9,650, R. B. C. 4,810,000. There has been considerable discussion as to whether choked disc in albuminuria is caused by toxemia or by intracranial pressure. In none of these cases is there a record of increased intracranial pressure but there is a lack of elimination with increase of blood urea in most of the cases. There is no reason why increased intracranial pressure might not be present but it would seem as if the retarded elimination in these cases was of considerable significance.

Periarteritis was present in fourteen cases. It is interesting to note that it was relatively more frequent in chronic nephritis 50 per cent. and acute nephritis 50 per cent. than in interstitial nephritis and hypertension.

Endarteritis is present in twenty-five cases, 61 per cent. It seems to be a more frequent feature in hypertension and interstitial nephritis than in chronic nephritis in which there are six or 50 per cent. The one case of endarteritis of the central artery was probably accidental.

Contracted or tortuous arteries, or arteries with irregularities in caliber are present in twenty-three cases. They are probably associated with the other vascular changes.

Silver wire arteries were seen in six cases of the arterial sclerotic type, five in interstitial nephritis, one in hypertension. They, of course, indicate advanced changes in the vessel walls. They have, when present, some prognostic value.

Corkscrew-like twists in the macular vessels are quite commonly mentioned as indicating sclerotic vascular changes in the retina. When present no doubt they are significant, but they were relatively infrequent, in this series there being but four, nearly 10 per cent.

Arteriovenous compression dilation, in which the venous return flow was so retarded by an overlying artery as to cause the vein to dilate from the increased intravenous tension caused by the compression, was present in twenty-four cases. The condition nearly always shows the presence of increased arterial tension, thickening of the arterial walls, or of both. It may indicate only a local condition, intraocular, but it is usually more or less closely related to a general condition. It may be due to an anomalous condition but in such cases it is not likely to be seen at more than one or two vessel crossings. Changes in the veins other than dilation from compression were relatively infrequent and like periarteritis they were relatively less common in the cases of interstitial nephritis and hypertension.

Hemorrhages were present in ten cases, about 25 per cent. Their diagnostic significance and importance is amply proven. They were relatively more frequent in the cases of interstitial nephritis and hypertension. Exudative changes appear in this series to have the same relation, as to type, as hemorrhages.

That detachment of the retina should be present in 10 per cent. of the cases was a surprise to me, although when one remembers the vascular changes that take place and that these changes may take place in the choroidal vessels also, one can find little difficulty in explaining subretinal fluid which might increase enough to cause a detachment to become extensive. Local detachments have been more frequently noticed, however, and in three of these cases they are localized. All of the detachments are in cases showing vascular lesions predominating, interstitial nephritis two, hypertension two.

The bad prognosis generally given in cases showing radiating or star shaped changes in

the macula is probably justifiable; most cases die within two years; occasionally they live much longer under good care. Rarely these changes are seen in cases presenting no kidney disease. They are caused by exudative and degenerative changes in the retina and their peculiar arrangement is due to the anatomical features of the horizontal layer of Henle.

Other macular changes are often present; their prognostic significance is not nearly as grave. They were present in 29 per cent of the cases. They are seen in cases not albuminuric much more frequently than the star shaped figure.

Choroidal changes were present in six cases, over 14 per cent. They are most likely dependent upon vascular changes in the choroid having the same etiology as the vascular changes in the retina and kidneys. Definite sclerosis of the choroidal vessels was made out in but one case, one of interstitial nephritis.

The thirteen cases showing changes of an inflammatory type include, the cases of choked disc, simple papillitis and exudative retinitis. They all seem to have more or less relation to the rapidity of elimination, the amount of blood urea, and perhaps to the presence of a relative increase in W. B. C., a condition quite noticeable in several of the cases of choked disc.

Atrophic changes are probably common in old cases of all types, or in subacute cases where some of the lesions are old. There were six cases showing such changes, all in the chronic types.

In the acute cases and in the sub acute cases, the changes, other than edema and increased vascular tension of greater or less degree, were relatively small. It is exceedingly interesting to note that practically all the cases showing a rapid elimination also show relatively few retinal changes, and that those changes that do show, are of an early type, without hemorrhages, exudates, sclerotic changes or marked papillitis.

No definite relation could be established between the amount of the blood pressure and the retinal changes; however, the number of cases presented, especially those of the inflammatory or acute types is too small to establish a relation.

In the preliminary considerations in the early portion of this paper the following questions were offered for solution:

1. Is there a recognizable relation between the type of general disease investigated and the associated ophthalmoscopic picture?

2. May there be a definite type of lesion in the central nervous system corresponding to the neuroretinitis, papillitis or vascular changes seen in the retina?

3. Is there a relation between the type of fundus lesion and the type of nephritis with which it is associated?

4. What relation do hemorrhagic and exudative changes in the fundus bear to the pathological changes present in the acute forms of nephritis?

5. Are there constant characteristic changes in the fundus in cases of parenchymatous nephritis?

6. Can a characteristic relation be established between the vascular changes accompanying chronic interstitial nephritis and the vascular changes in the fundus?

7. Is there any relation between the small dots or spots seen in the macula and the type of vascular change in the fundus?

8. What is the relation between the star like figure in the macula and the type of vascular changes in the fundus?

9. What relation can be established between the pathological changes found in the fundus in nephritis and the pathological changes which take place in the several varieties of kidney lesions?

Some of these problems may perhaps be answered more or less satisfactorily while others must be left for another series of investigations, particularly one which shall include a greater variety of cases.

1. Considering the relation between the type of general disease investigated and the ophthalmoscopic picture present, one may refer with advantage to the table on next page.

Taking up first the cases of interstitial nephritis and the closely related condition hypertension with symptoms similar to those seen in nephritis edema of the retina, disc or macula or some combination of these was present in every case of interstitial nephritis, and in addition, in every case of hypertension. One may conclude, therefore, that edema is a fairly constant ophthalmoscopic finding in nephritis, but, that it is not diagnostic is shown by the fact that it was also present in a high degree in all other types investigated.

Comparing percentages given in the last table we have as predominating features for chronic interstitial nephritis and hypertension, edema 100 per cent., endarteritis 70 per cent., arteries tortuous or contracted 52 per cent., silver wire arteries 26 per cent., arteriovenous compression 61 per cent., hemorrhages 61 per cent., exudative changes 70 per cent., detached retina 17 per cent. In other words the predominating features of chronic interstitial nephritis and hypertension are almost exclusively dependent upon changes in the vascular system, particularly the arteries.

On the other hand we have as predominating features for chronic nephritis, edema 83 per cent, congested nerve head 25 per cent, swelling of disc one diopter or more 25 per cent., periarteritis 50 per cent., endarteritis 50 per cent., arteries tortuous or contracted 75 per cent., cork

Type of Disease		Findings	Edema	Nerve head congested	Nerve head swollen one drop or more.	Periarteritis	Endarteritis	Arteries tortuous or contracted	Silver wire arteries	Cork screw vessels	Arteriovenous compression	Arteriovenous compression dilation	Veins engorged or tortuous	Periphlebitis	Hemorrhages	Exudative changes	Detached retina	Star shaped macular changes	Other macular changes	Choroidal changes	Changes mostly of inflammatory type	Changes mostly of atrophic type
A.	Chronic Interstitial Nephritis	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
		100	19	19	19	69	56	31	6	25	50	6	0	62	68	12½	6	25	25	37	12	
B.	Chronic Nephritis	83	25	25	50	50	75	0	25	25	50	58	25	50	17	0	25	33	25	42	25	
C.	Hypertension	100	29	14	43	71	43	14	0	14	86	29	0	57	71	29	0	29	0	29	14	
D.	Acute Nephritis	100	100	0	50	0	50	0	0	50	50	0	0	0	0	0	0	0	0	0	0	
E.	Miscellaneous	75	0	0	25	75	25	0	0	25	75	50	0	25	50	0	0	50	0	0	0	
F.	Chronic Interstitial Nephritis and Hypertension combined	100	22	17	26	70	52	26	4	22	61	13	0	61	70	17	4	26	13	35	13	

screw vessels 25 per cent., arteriovenous compression 25 per cent., arteriovenous compression dilation 50 per cent., veins engorged or tortuous 58 per cent., periphlebitis 25 per cent., hemorrhages 50 per cent., star shaped macular changes 25 per cent., other macular changes 33 per cent., choroidal changes 25 per cent. The predominating features of chronic nephritis are in the small number of cases presented for comparison somewhat less of a vascular type as regards frequency, although periarteritis was nearly twice as common, and periphlebitis, although presenting but 25 per cent., was entirely absent for the interstitial class. Star shaped macular changes also, in this series are much more frequent in the chronic nephritis class as are to a much less degree other macular changes.

2. The question as to the relation between intracranial conditions and fundus changes cannot be said to have been answered in this series, other than the one instance of hyaline perivascular obliteration to be given further on. That there may have been a relation in the cases of choked disc cannot be denied.

3. The question as to there being a relation between the type of fundus lesions and the type of nephritis present could not be answered without many more cases for comparison. There can be no doubt, however, that if, in this series, one analyzes the observations and deductions derived from the last table, it appears that periphlebitis, tortuous veins, congested or swollen discs and other inflammatory changes with an associated edema of the disc, retina, macula, in over 80 per cent. of the cases, would suggest chronic nephritis, while changes in the intima of the arteries, with edema and other features of high tension and interference with nutrition are more distinctive features in the ophthalmoscopic picture of chronic interstitial nephritis.

The number of cases of acute nephritis is so small that deductions are unsafe although it may not be assuming too much to call attention to the fact that edema, congestion of the discs, periarteritis, tortuous arteries and veins and arteriovenous compression are probably more of an inflammatory or toxic type than of a vascular degenerative type.

The miscellaneous cases seem to show that similar features such as edema 75 per cent., periarteritis 25 per cent., endarteritis 75 per cent., tortuous arteries 25 per cent., arteriovenous compression dilation 75 per cent., veins engorged 50 per cent., hemorrhages 25 per cent., exudative changes 50 per cent., macular changes (not typical) 50 per cent. may be found in conditions not strictly nephritic and that one cannot repose too much confidence in the ophthalmoscopic diagnosis of nephritis.

4. The fourth question must remain unanswered as to acute nephritis, observing in passing, that in so far as our cases go, hemorrhages and exudates were absent in both cases. In chronic interstitial nephritis hemorrhages were present 62 per cent. of cases, in hypertension 57 per cent. of cases, combining the two we have for the vascular degenerative type 61 per cent., while in the chronic nephritis 50 per cent. showed hemorrhages. Exudative changes were present in the interstitial type in 68 per cent., in hypertension 71 per cent. or combining as before 70 per cent.; in chronic nephritis exudative changes were present in but 17 per cent. May we conclude from these facts that both hemorrhages and exudates are more characteristic of interstitial than of forms of chronic nephritis not belonging to the class of predominating degenerative arterial changes.

5 and 6. Answers to the fifth and sixth questions insofar as is possible in this series have been included in those already given.

7. The seventh question must not be considered as answered by this series excepting in that macular changes were rather more frequent in the chronic nephritis cases than in interstitial nephritis or hypertension or in the two combined; that macular changes other than edema were absent in acute nephritis and present in 50 per cent. of the miscellaneous cases.

8. Considering question eight one can only say, that while a more or less typical star shaped figure was present in 25 per cent. of the cases of chronic nephritis, this feature was present in but 6 per cent. of the cases of interstitial nephritis and entirely absent for the cases of hypertension. It was also absent in the cases of acute nephritis and from the miscellaneous cases.

9. Question nine is perhaps the most difficult and the most interesting of any. In each case we have an organ made up largely of highly differentiated epithelial cells, differing widely as to embryological origin, but each bound together by a supporting frame work, and each having a rich and peculiar type of vascular organization and blood supply.² As in diseases of the kidney, so in diseases of the retina, the changes which take place are of a degenerative type, often dependent upon the associated or preceding vascular changes.

Edema which was common to all classes and almost constantly present, occurs in the earliest stages of retinitis as a diffuse edema affecting the disc, retina and macula. It gives rise to a watery haziness or opalescence with increase in the retinal depth as measured by the ophthalmoscopic parallax. Later localized edema may occur in the retinal substance forming cystic spaces which may become filled with hyaline or fat derived from the degenerating arterioles with subsequent formation of cholesterol crystals. When the spaces become large and distended they may rupture externally giving rise to subretinal fluid with detachment. As a result of the pressure edema and intracystic exudate, the nerve elements degenerate, the fluid filling the spaces changes to hyaline, and more or less well defined white spots or areas develop. In the severe types, endothelial leucocytes may penetrate the hyaloid boundary and lead to the formation of white bands, or in more severe cases to proliferating retinitis.

The vascular changes upon which the retinal changes to so large a degree depend are generally the result of hyaline necrosis with fat formation due to changes in the intima. Endarteritis is followed later by deposits of lime salts in the necrotic areas of the intima. The perivascular changes are due, either to albuminous exudate followed by hyaline deposits in the perivascular sheaths, or to a peculiar type of

hyaline degeneration seen in other parts of the central nervous system, in which there is deposited around the wall of the artery minute droplets of hyaline which fuses to form a complete sheath for the vessel; the cause of this formation is not known; calcification often occurs.³ The condition constitutes the true silver wire artery. Hemorrhages when small may undergo complete absorption through the activity of the endothelial leucocytes. If large, the blood pigment may be partially, absorbed through the same means, while fatty degeneration of the coagula followed by cholesterol formation and the development of cystoid spaces with hyaline and other changes, may lead to permanent white patches more or less associated with unabsorbed irregularly arranged blood pigment.

Leaving the retinal side of the picture and turning to the kidney lesions we find, here too, that vascular changes are frequently the predominating feature of the several forms of the disease, with in addition, the peculiar degenerative processes which take place in the various tubules. Here, too, we see hyaline and fatty changes in the vessel walls and in the epithelial cells of the tubules. While amyloid appears in the vessel walls I find no mention of its appearance in retinal disease, however, as amyloid appears to lead to hyaline thickening with gradual occlusion of the vessel lumen, it might be found in the retina also in cases in which an artery becomes obliterated. Amyloid appears first in the glomeruli and the smaller arterioles, and later forms around the tubules, leading to colloid and hyaline degeneration of the epithelium of the tubules.

In the toxic form of acute tubular nephritis marked necrotic changes are seen in the epithelium of the tubes, associated with inflammatory reaction, lymphocyte infiltration, leucocyte migration, etc. Inasmuch as this type of cases was so nearly absent from the series under consideration no retinal relation need be discussed, but inasmuch as similar changes sometimes take place in the heart and liver in toxic conditions, it seems not unlikely that some definite relation may sometime be established.

Toxic glomerular nephritis presents certain peculiar features in which we have (a) the capsular type with inflammatory exudates into the capsular space and degeneration of the capsular epithelium, or in some cases, proliferation of the capsular epithelium; (b) the intracapillary type in which the glomerular capillaries are involved, with intracapillary fibrin formation and the accumulation of leucocytes, without much epithelial involvement. Inasmuch as the types of glomerular nephritis are due to toxins which often have a general distribution and as they are more or less of an inflammatory character

2. Although the choroid is not a part of the retina it is the source of nutrition for the other retinal.

3. Principles of Pathology and Histology, Mallory, P. 444.

one might expect that an associated reaction in the retina would also take on an inflammatory character, as would be shown by neuro retinitis, papillitis, periarteritis, periphlebitis, exudates, etc. In the clinical classification of chronic nephritis in which doubtless there were some cases more or less of these types, inflammatory retinal changes appeared to be predominating features.

In chronic interstitial nephritis, endarteritis affecting the inner fibrous layer and the endothelium, such as occurs in the vessels in general arterial sclerosis, is present. The necrotic process attacks the cells of the intima particularly the fibroblasts, necrosis occurs, and the endothelial leucocytes are set free. When regeneration occurs there is an over production of new elements with consequent narrowing of the vessel. If the endothelial cells degenerate, fibrous thrombi may follow leading to irregular thickening and localized occlusion of the vessel; secondary sclerosis and disappearance of glomeruli follows. When the occlusion is rapid, hemorrhage into the glomeruli may result. The vascular changes are followed by degeneration and atrophy of the renal epithelium with contraction and apparent increase of the connective tissue elements.

That there is quite a definite relation between the pathological changes in the kidney in interstitial and the associated pathologic changes of albuminuric retinitis would seem to be established in the series by the fact that the retinal lesions recognizable with the ophthalmoscope are pathologically as like those found in the kidneys in interstitial nephritis as could be expected in organs so different in function and gross structure.

The preceding report was made possible by the kind co-operation of Professor Albion W. Hewlett and his staff of the Medical Clinic in permitting the use of the cases and in the giving access to their records for the reports on the medical findings. For permission to make the ophthalmoscopic studies I am indebted to Professor Walter R. Parker. For kind assistance in collecting the medical notes I am indebted to Dr. D. V. Smith, Assistant in Ophthalmology. I am deeply grateful to all these gentlemen for these kind favors.

DISCUSSION.

DR. WALTER R. PARKER: When Dr. Hewlett mentioned to me the fact that on the Medical Clinic they were doing some investigation along the lines of establishing the relationship of the elimination process to the different forms of nephritis, it occurred to me that there was an opportunity for some work along the same lines in connection with the various changes in the fundus. Dr. Slocum was glad to take this phase of the work up and you have heard the report of his investigation.

The investigation of these cases throws us at once into the general problem of vascular-sclerosis

with its manifestations. The pathology of the changes in the fundus are no different from similar changes in other parts of the body. They may be local or general, primary or secondary.

The primary form develops apart from any local inflammation. Seen in chronic alcoholic poisoning, syphilis and albuminuria. The secondary form results from a local inflammation as in disseminated choroiditis or in retinitis pigmentosa. Syphilis may be either the primary or secondary cause of vascular sclerosis. In the second stage when the infection is general with wide spread endarteritis, the sclerosis is primary. But when the disease shows local changes there may be intense local secondary vascular changes.

In general sclerosis as seen in nephritis, there may be a transudation into tissues leading to various changes. If subretinal, we may have detachment. In intraretinal in the nerve fibre layer, gray patches with ill defined margins are seen, if in the internuclear layer, which is the most common form, masses of exudation somewhat star shaped in the macular region are observed. Add to this picture the various forms of hemorrhage as sublyloid, superficial or deep retinal, with the possibility of an embolism of an artery, or a thrombosis of the vein, and you have some idea of the possibilities in a study of this kind. In cases of thrombosis of the central vein, the swelling in the retina and nerve may be so great as to suggest a choked disc as seen in cases of brain tumor, while in interstitial nephritis, the changes may be all limited to the arteries themselves.

I think this study shows that, in general, the cases which have subnormal elimination will show a marked edema, and more swelling, with the consequent changes, than those which have better elimination as in the chronic interstitial type of the diseases where the changes are limited almost entirely to the arteries.

This work will be continued and I hope may add still more to our present knowledge.

DR. J. H. AGNEW: I was very much interested in Dr. Slocum's paper because many of the cases I was observing at the same time in the medical clinic with reference to the urea content of the blood. It is gratifying that Dr. Slocum has been able to group the cases which showed decreased elimination. I think it is very encouraging that there has been some distinct progress made in correlating the fundus findings with the clinical diagnosis.

DR. C. D. CAMP: If I had not already been converted to the use of the ophthalmoscope in the diagnosis of disease, I think Dr. Slocum's numerous and careful observations would convert me. I would call attention, however, to the necessity of not depending too much upon the fundus findings for a diagnosis. This strikes me particularly in reference to the presence of choked disc. You will find that many writers, and I think almost all of the text books make statements that choked disc of two diopters or over is practically pathognomonic of brain tumor. Dr. Slocum found two of four diopters and other cases of between that and two diopters.

DR. R. BISHOP CANFIELD: I am interested in the case from the clinic of otology because this patient had a suppurative process in the jugular bulb, on account of which the jugular vein and its tributaries were removed. This of course caused considerable decrease in the venous return from the head. It happened that, as is usually the case, the right jugular vein was much larger than the left and at the time of the operation, the venous return was apparently interfered with. The child had two or three diopters of papillary edema. If she

has a diplopia due to involvement of the external rectus of that side, it speaks very strongly for an abscess at the apex of the temporal bone—a very deep seated abscess or a serous meningitis at this point. If this edema can be said to be characteristic of her nephritis it gives greater latitude in attempting to find the cause of her diplopia.

DR. GEORGE SLOCUM: In the case last spoken of, the condition of the fundus is such as might be found in almost any case of acute nephritis. The changes in the disc and retina were edema, and slight venous tortuosities, and these changes were precisely similar to those in the fundus of the case of acute nephritis in which the etiology was entirely different. The amount of albuminuria and the active change going on in the kidney are entirely sufficient to account for the retinal condition.

311 South State street.

THE PROGNOSTIC VALUE OF A FUNCTIONAL TEST OF KIDNEYS IN CASES FOR PROSTATECTOMY.

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(From the Department of Genito-Urinary Surgery, University of Michigan.)

The purpose of this paper is to present briefly tonight a series of cases which although rather incomplete may throw some light upon the prognosis of cases requiring a prostatectomy.

As we all know there has been, and is now considerable discussion as to the technic of a prostatectomy, its after care and its prognosis. Also that few, if any, of the men doing this work are satisfied with their morality. This paper will only take up the prognostic end of the question.

A few years ago a reagent called phenosulphothalein was recommended by Geraghty of Johns Hopkins, for use as a test of renal function. This is purely a color test, one cubic centimeter of the reagent being injected subcutaneously or preferably intramuscularly, the urine secreted during the next two hours then being tested for the amount excreted in that time by comparing its color to that of the standard solution.

Normal kidneys should show the first excretion within ten minutes, and the total excretion for the two hours would be around 75 per cent. Usually the urine of the first and second hours are estimated separately, but in the following cases that has not always been done, as it is very difficult to make a reading if the amount falls below 10 per cent.

The chief cause of death following a prostatectomy is suppression of urine and the subsequent uremic poisoning. In all cases of senile hypertrophy of the prostate there is more or less of renal function, due to the back pressure from the never empty bladder, which going up through the ureters acts upon the kidneys with a consequent ill effect upon their function. The object of the functional test is to estimate the degree of damage already done to the kid-

ney and whether their function can be increased up to a point of operative safety.

All cases of senile hypertrophy of the prostate coming into the hospital, have a permanent catheter placed into the bladder as soon as a diagnosis is made. As soon after this as possible an injection of phenosulphothalein is made, and an estimation of their eliminative power is thus made. If this is low, the catheter is kept in place, the object being to keep a constantly empty bladder.

If within a week or two a repetition of the test shows an increased elimination, the kidneys have shown that they can recover, and the prognosis for the recovery of the patient following operation is better. The determination of future procedure depends upon the degree of renal function present. This will be indicated by the following cases.

CASE 1. Mr. S., age 80, came into the hospital before the passing of urine was entirely impossible for him (this is sometimes the case). After a permanent catheter was installed his functional test showed 25 per cent. elimination in the first hour, and 20 per cent. in the second hour. On the strength of this his prognosis was thought to be good, and a prostatectomy was performed within the next few days, the patient having an uneventful recovery.

CASE 2. Mr. W., age 67, also came into the hospital before he was totally unable to void urine, though his trouble was of three years standing. Urinalysis showed albumen, pus, but no casts. His functional test showed a total of 48 per cent. elimination in two hours, so his prognosis was also considered good, and within a week a prostatectomy was performed with an uneventful recovery.

CASE 3. Mr. A., age 74, trouble being of two years standing, and for the past five weeks before entrance was unable to pass any urine except by catheter. Urinalysis showed albumen, pus, but no casts. Permanent catheter was installed and the functional test showed 34 per cent. elimination in two hours. The patient stood the catheter very well so it was kept in place for the next two weeks, when another test showed an elimination of 40 per cent. in two hours. This while not a great increase, yet the fact that there was an increase, made his prognosis rather good, and a week later a prostatectomy was performed with a good recovery.

CASE 4. Mr. B., age 61, trouble for four years standing, could pass a little urine, but his residual urine was found to be twelve ounces. Functional test was only 19 per cent. for two hours. A permanent catheter was employed for a week, but as he did not stand it well, a cystotomy was then performed, in an attempt to improve his renal function. At this time a

diverticulum of the bladder was found, situated posteriorly and beyond operative reach. This complication undoubtedly affected his other condition. Five days after the cystotomy his test showed 20 per cent. for two hours. Continuous drainage through the wound and daily irrigation cleared up the cystitis somewhat and about two weeks after the first operation his test showed 23 per cent. elimination in two hours. This, although a very light gain, yet was sufficient to make us think that he stood a good chance, though not the best of recovery, and a prostatectomy was performed. Following this he showed no signs of suppression at any time and went on to an eventual recovery.

CASE 5. Mr. F., age 66, trouble of six years standing, has employed a catheter more or less continually for the past three years. Urinalysis showed albumen, pus, and no casts. Functional test was 41 per cent. in two hours. While this was comparatively good, yet on account of the long continued use of the catheter and subsequent cystitis, it was decided to first perform a cystotomy only. A week after this the functional test was 48 per cent. so a prostatectomy was performed with good recovery.

CASE 6. Mr. S., age 63, trouble of ten years standing, and has used catheter for the past two years. The bladder was very irritable and much inflamed, so much so that he needed catheterization nearly every hour. His urine was loaded with pus, but no casts were found. Functional test showed that ten ounces of urine were secreted in two hours, but absolutely no trace of the phenosulphothalein could be found. On account of this showing an estimation of the urea content of the patient's blood was made. This was found to be 1.88 grams per 100 cubic centimeters or about four times the normal amount. This confirmed the previous findings, and made his prognosis very bad. The patient however was unable to stand a permanent catheter, and was suffering more or less continually, so in order to relieve him and on the possibility that he might survive a very short operation under gas anesthesia, a cystotomy was performed. The patient started to secrete urine after operation, although this consisted of little else but water and pus. Within forty-eight hours he developed uremia, and died in uremic coma four days after operation.

CASE 7. Mr. W., age 63, trouble for two years standing, has had to employ a catheter for four months previous to entrance to hospital. During this same period the patient has had rather severe gastrointestinal disturbances, being nauseated and vomiting at frequent intervals. Has been able to take very little nourishment. On entry to hospital a permanent catheter was installed. Within a few days his nausea and vomiting ceased, and his appe-

tite improved wonderfully. Educational tests on entry was 0. Urine was pale, of low specific gravity, had considerable pus, and no casts. Catheter was kept in place and a week later the test was repeated, showing no improvement. Here we have a case of relative, and symptomatic improvement following free drainage of the bladder, but no signs of absolute improvement. After four weeks of treatment with permanent catheter, a cystotomy was performed under local anesthesia. The following day he showed a few beginning symptoms of uremia, but these passed off by the next day, and patient returned to his former condition. Good drainage was maintained through the wound, and two weeks later a functional test was again made, showing absolutely no improvement over the first one. At this same time an estimation of the urea content of his blood showed 3.15 grams per 100 cubic centimeters, or more than six times the normal amount. The patient was then discharged as inoperable. There is no doubt but that a prostatectomy in this case would have been fatal to the patient.

CASE 8. Mr. R. age 80, trouble of ten years standing. For three or four years has had to employ a catheter occasionally. Recently has been unable to get along without one. Patient was in state of chronic uremia on entrance. Urine showed many casts, and much pus. Functional test was 10 per cent. for two hours. The patient would not stand a permanent catheter at all, and on account of his general arteriosclerotic condition, and the condition of his kidneys it was thought that even a cystotomy would be fatal, so the patient was sent home without further treatment.

CASE 9. Mr. S., age 65, is interesting in that it shows a correlation between the phenosulphothalein test, and the symptomatic condition of the patient. On entry, the test was 37 per cent. for two hours, and the patient was running a slight temperature undoubtedly due to pyelitis. A permanent catheter was installed, and it was thought that within a week or so he would be in condition to operate. However, at the end of the week the patient developed a sub normal temperature, nausea, loss of appetite, a badly furred tongue and became much weaker.

Shortly after this another test was run, which showed a marked drop down to 20 per cent. in two hours. The patient is now in a state of chronic uremia, and is still in the hospital, with a permanent catheter, but is considered a very bad operative risk, and such being the case probably no attempt will be made to perform any operation.

There are several more cases which might be reported here, yet as the above cases have shown nearly every variety of this problem it was decided not to put them in here.

From a study of the above cases the following conclusions may be drawn. First, that the functional test of the kidney is an invaluable aid in determining the prognosis of these cases of senile hypertrophy of the prostate. Second, that when it has been checked up by an estimation of the urea contents of the blood, it shows a considerable reliability. Third, that with it as a guide, along with other findings the mortality of these cases could be made very low. Fourth, that it indicates very clearly the affect of back pressure upon the kidney, inasmuch as

those cases that we can call early, show a much better renal function. This would also be a plea for earlier diagnosis, and operative interference as the futility of other methods of treatment and their bad affects has often been demonstrated.

In conclusion I would say that there has been no attempt to compare these findings with those of others, the data being entirely drawn from our own experience during the past six months.

The Dividends
That Are Due You By Reason of
Your Membership in Your
County and State Society
Will Be Paid to
YOU
in Lansing on
September 9-10-11
Plan to Be There
to Collect
Them

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

PUBLICATION COMMITTEE

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SEPTEMBER

Editorials

ESSENTIALS IN THE SURGICAL RESTORATION OF THE FEMALE PELVIC FLOOR.

The saying, accredited to Dr. Johnson, that "in all sublunary things, there is something to be wished which we must wish in vain," seems particularly applicable to the minor plastic surgery of the parturient tract. For, in spite of an enormous literature devoted to the subject during the past two hundred years, proper procedure seems still to be hazy in the minds of a large number of operators.

An explanation for this tardy adoption of some well-defined rule in the repair of childbirth lacerations, and especially for the rehabilitation of the perineum, may be found in the failure of the majority of operators to grasp the basic principles underlying the surgical restoration of the injured parts, for, as another old writer observes, "the assured truth of things is derived from the principles of knowledge, and causes which determine their verities."

Up to the middle of the seventeenth century, while obstetric lesions of the birth-canal were recognized, no attempts at radical restoration were made, the surgeon being well satisfied with efforts directed toward relief through rest in bed, cleanliness and, occasionally, the application of the red-hot iron. In his book published in 1649, Guillemeau, a French surgeon and one time pupil of the celebrated Ambrose Paré, was the first to advocate the closing of the torn perineum by means of interrupted sutures. The method was, however, not exten-

sively adopted, and little advance was made until the introduction of the quill suture by Baker Brown, (1854) in England, reopened the discussion.

It was at about this time also that Marion Sims in this country called attention to the advantages of silver wire in these operations. To Emmet has been justly ascribed the honor of placing the plastic surgery of the vaginal tract on a sound basis, and in his well devised operation on the perineum he rendered a signal service to womankind.

The real significance of these operations, however, did not become apparent until the anatomy of the pelvis began to receive closer scrutiny and study, an appreciation of the architecture of the parturient canal was had, and a knowledge of the necessary surgical steps in the restoration of the structures involved in childbirth lacerations began to develop. The failure of the older operations to prevent sagging and prolapse of the vagina and uterus left something to be desired, and controversy waxed strong as to what the actual supporting structures of the pelvic viscera included. Even today the question remains undecided in the minds of many who still wander in a maze of perplexity and doubt.

In the heat of discussion the simple fact seems to have been lost sight of that upon no one structure does the normal status of the pelvis depend, but rather upon a delicate and harmonious adjustment of the whole. That this is so is repeatedly demonstrated by the failures—when only mucous membrane, fascia or skin have been united—daily observed in consulting room and clinic. Brilliant cosmetic results may often be obtained by such procedures, but the relief of symptoms, for which the operation is undertaken, is conspicuous by its absence. Moreover, in the attempted repair of these lesions, the role of intra-abdominal pressure is too frequently lost sight of or ignored. With a heavy, subinvolved and displaced uterus, no matter how skillfully the operation may have been performed, weight and pressure from above sooner or later overcome the good accomplished and the ultimate results are nil. It is requisite to success in all plastic operations on these parts that the uterus be placed, and held, in as near-normal position as possible.

Lacerations of the perineum very rarely take place through the central portion of the so-called perineal body, but usually occur in one or other lateral sulcus, often excavating behind the obstetric perineum, and involving structures higher up. These overparts are the really essential; and operations which fail to include them in their technic are of no permanent value. In the restoration of the pelvic floor, as exact replacement as possible of all of the lacerated and overstretched tissues is indis-

pensible; but of the various fascias, muscles, etc., included, *the levatores ani muscles*, as I was among the first to point out, (*N. Y. Jour. Gyn. and Obst.* Sept. 1892) *are of chief importance.*

Dissection of the female pelvis shows this muscle to be made up of several fasciculi which are attached to the bony pelvis and the "white line," the most important of which, as to sustaining strength, surround the rectum and vagina as in a sling, their action or function being to draw these tubes upward and forward toward the pubic symphysis.

Careful digital examination of the nulliparous woman, the parturient and the puerpera should convince the most skeptical of the value of these muscles in the total of the structures of the pelvic floor. Per vaginam the levatores may be felt as firm bundles on either side of the vagina about an inch above the hymen; in some women so strongly developed as to form a distinct ridge or shelf. These are the muscles which I pointed out in 1887 (*Trans. Mich. State Med. Society*) as chiefly concerned in the spasmodic condition called by Sims "vaginismus;" they are the only muscles of the vagina strong enough to hold the *penis captivus*, or, in a state of contraction to prevent the introduction of the examining finger. An unusual case of this kind came under observation at the Womans Hospital, in which the first child had been delivered by Cesarean section from the mis-idea that an organic stricture of the vagina existed. The second delivery I was able to terminate with forceps. It is well known that loss of the sphincters of the anus may result from disease (cancer) and the patient still retain control of the bowel contents if the levatores remain intact.

These facts are introduced to illustrate the powerful action of this muscle and its important function in supporting the superimposed structures. In operation on the pelvic floor the integrity of the levatores must be first of all assured. In bringing these disconnected parts together the fascia and connective tissue will naturally be included, and by the uniting of the mucosa overall the anatomical harmony of the region will be restored.

As the muscle bundles of the levatores lie well to the sides, in the immediate repair of lacerations and in secondary operations, the needle must be carried deep laterally in order to reach and gather up the torn or overstretched fibers. The restoration of the parts does not demand "improving on nature" by the building up of a thick perineum. As pointed out by Emmet, if the upper caruncles are first brought together by tenacula, the exact depth of the original perineum can be determined, and the restoration may be made to assume the same proportions, whether thick or thin. In whatever form the

laceration appears the direction of the tear or scar must be followed, and the nicest attention given to bringing the denuded surfaces into normal relationship.

W. P. MANTON.

OUR GOVERNOR.

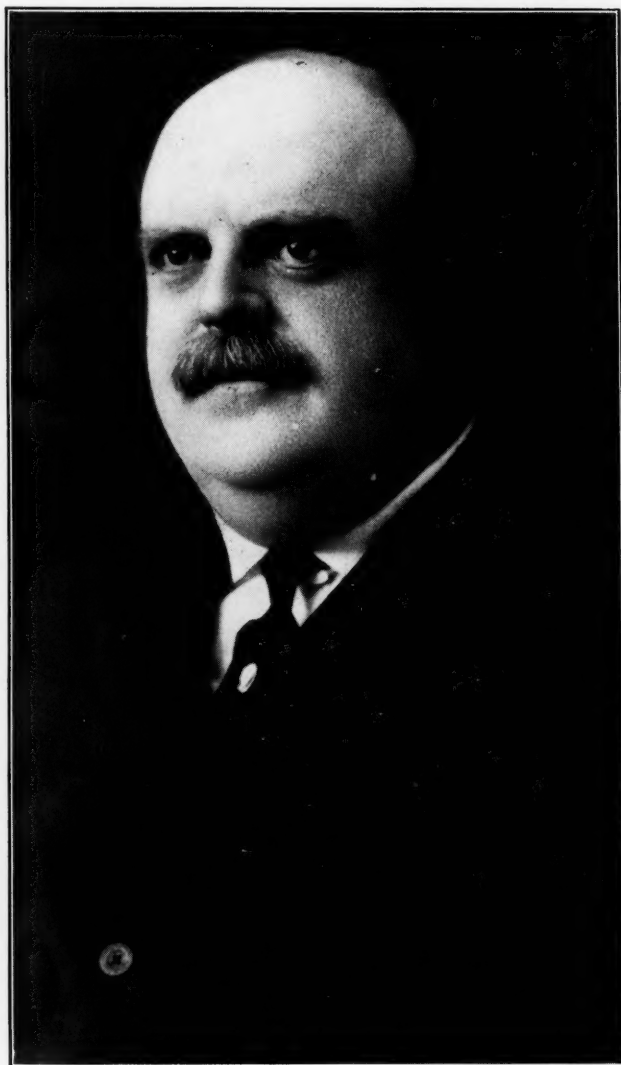
The announcement that Gov. Ferris will be a candidate for re-election is of great importance to the medical profession. Never have we had a Governor who has equalled Governor Ferris in his zeal for the protection of the people from the depredation of quackery. Possessed of an unusual knowledge, for a layman, of the primary principles upon which the science of medicine depends he at once, in his message, sounded the keynote which appealed to the Legislature as a sound principle that no one should be permitted to treat the human body by any therapeutic method unless he could demonstrate, to competent authority, that he was grounded in the sciences, a knowledge of which is essential to enable one to recognize the presence of disease. He took the position that if one is thoroughly educated in anatomy, physiology, chemistry, bacteriology, histology, pathology and diagnosis that the public will be reasonably safe in his hands no matter what different principles of therapeutics he may follow. To be sure, the Legislature would not go the whole length. It made exception of those ignoramuses who had already been practicing upon the credulity of the public for a period of two years, but the Governor very rightly approved the bill as being a step in advance.

It is not the proper function of the organ of the medical profession in Michigan, under ordinary circumstances, to participate in political discussions nor to take sides as between opposing political candidates for office of governor, but in this case we do not consider the circumstances ordinary ones. We have a governor who has placed himself strictly upon the side of strict enforcement of medical laws and in favor of improving those laws so far as possible, not of course in the interest of the medical profession, but for the protection of the people of the state. Every physician recognizes that this is an unusual attitude for a governor to assume, especially a political governor, and we believe that the medical profession owes it to itself to recognize this high minded and intelligent attitude of our present chief executive and do all in its power to ensure his re-election. He has time and again demonstrated that he was no mere party or political governor, that he was courageously endeavoring to work for the best interests of all the people regardless of political affiliations. Let us therefore, without regard to our party affiliations, rally around his

flag and demonstrate to the people that we welcome the advent of a scholar in politics, of a fearless administrator, of an honorable gentleman who has brought honor to this commonwealth as its chief executive.

Michigan, he is so well known that to repeat his life history would be only imparting repetitions of facts with which most of you are familiar.

As the chief executive of our State Society he has not rested on his laurels. On the con-



GUY LINCOLN KIEFER, M.D.

OUR PRESIDENT.

Guy Lincoln Kiefer, M.D., D.P.H.

During the past year we have twice editorially commented upon the work of Dr. Kiefer and the good influence he has exerted upon the movements directed towards the conservation of the health of the public of Michigan during his long term as health officer for the city of Detroit. The doctor's reputation is not confined to our state; it is national and he is counted as one of the many leaders in public health work in the United States. To us, the profession of

trary, during his entire administration he has kept in close touch with our county societies and has during the year addressed several of their meetings. As the last official act of his office as President he has perfected the arrangements for an inspiring meeting at our General Session, and has secured men of national reputation to discuss the doctor's relation to the public health advancement propaganda.

While Dr. Kiefer will, at our Lansing meeting, step out of office we are certain that his interest and his labors for the profession and the people of Michigan will not simultaneously

terminate. The *Journal* extends to Dr. Kiefer its thanks for his labor and efforts of the past year. It extends unto him also its best wishes for continued health and prosperity and feels certain that the future will bequeath unto him numerous opportunities to remain actively engaged in the work of organized medicine.

THE FORTY-NINTH ANNUAL MEETING

This issue contains the complete program for the 49th Annual Meeting that is to be held in Lansing, as the guests of the profession of Lansing and Ingham County, on September 9, 10, 11.

We feel most sanguine in regard to this meeting by reason of the fact that we are able to present such an interesting, up-to-date and instructive program. It is bound to be a meeting of unusual interest and one that contains much that will be of value to every medical man, no matter in what field of medicine he is active.

Today, when there is so much activity and discussion of the problems confronted in the movement for the conservation of public health, it is aptly fitting that the subject be discussed by Dr. Guy L. Kiefer in his Presidential Address, and that he has invited leading men, professional and lay, to discuss his paper at the first General Session will increase the interest in the meeting.

Dr. Ravenel of Wisconsin and Dr. Cressy L. Wilbur of New York, together with Drs. Vaughan and Sawyer and Rabbi Leo M. Franklin of Detroit, with the Hon. Judge Alfred Murphy of Detroit, who have been invited to discuss the President's address, cause us to feel safe in stating that this General Session will equal and exceed the one held in Flint last year.

The Defense League of our Organization is performing an excellent work and our members are reaping the benefit. It has been arranged, so that the members may have a little more insight of the factors that cause the bringing of malpractice suits, to have a member of the firm of our attorneys, H. V. Barbour, of Detroit, address those in attendance on the subject of, "The Origin and Prevention of Mal-Practice Cases."

The Section Officers merit our thanks for the excellent programs of timely papers which they have arranged. Our appreciation should be demonstrated by a large attendance and active participation in the discussions. As invited guests the following will address the several section meetings:

E. H. Beckman, Mayo Clinic, Rochester, Minn.

W. Seaman Bainbridge, New York City.

Channing W. Barrett, Chicago.

Derrick T. Vail, Cincinnati.

D. N. Eisendrath, Chicago.

Neil J. MacLean, Winnepeg.

Prof. L. H. Harvey, Kalamazoo.

M. M. Portis, Chicago.

Otto T. Freer, Chicago.

Every student of medicine is familiar with the work of these men and their presence at our meeting is an assurance that they will impart much that is of interest and practical to your daily work.

Every paper on the program adds to the attractiveness of the meeting and their entirety should compel you to resolve to not permit yourself to miss this meeting. Busy as you may be, important as are your engagements, they do not warrant your remaining at home.

The meeting of the County Secretaries' Association will be devoted to the discussion of the problems that confront a County Secretary and of those methods that will enable the county and state officials to build up and advance the efficiency of our organization. To this end we urge that the members of each county make it their duty to secure the attendance of their county secretary at this meeting which will be followed by a complimentary dinner.

Our meetings have for several years had the added attraction of providing for those in attendance the opportunity of making new and renewing old acquaintances. This factor has not been overlooked this year. The hospitality of the Lansing physicians is well known and they have arranged for and provided pleasing features for your entertainment and pleasure. They will cause you to relinquish all care and vanquish all your troubles. They await to bid you welcome and to proffer you their hospitality.

But enough, it is yours to choose and decide whether or not you will be a profit sharer of this meeting. Profits that, on returning home, will yield you a larger income, inspire you and enable you to do better work, be a better doctor. Your ability to maintain abreast with the present is determined by the time devoted to your county and state meetings. This forty-ninth meeting of our organization is an opportunity that you cannot permit to pass without causing it to yield you a personal revenue. You collect by attending—plan then to be there.

Editorial Comments

Your presence at the Forty-ninth Annual Meeting is urged.

One out of every eight women, one out of every eleven men afflicted, a total of 75,000 deaths each year in the United States alone—a death rate now exceeding tuberculosis die from a disease which must have been at one

time in every individual case but a single cell or a small group of cells which could have been at that time absolutely, completely removed. Thus writes J. E. Sweet, of the Surgical Research Department of the University of Pennsylvania in a recent issue of *The Therapeutic Gazette*, in discussing the cancer problem. He goes on to state: The statistics of Pennsylvania show that the average time when a physician is consulted after the patient is aware that something is wrong in the part affected is one year, and the average time of consultation with a surgeon is two years after this date.

These two statements are worthy of our concentrated thought and reflection. It is universally conceded that local lesions subjected to thorough removal by means of the knife will result in a cure and prevent recurrence. This is the recognized teaching of the present time. In view of this we are compelled to admit the pertinency and the implied impeachment of the general profession by the author when he asks: "How about the whole year that elapses after the cancer patient consults the physician before the surgeon is consulted—what is the physician doing during that year?"

The sooner the doctrine of early and prompt surgical interference is known and preached by the profession the sooner will occur the elimination of this "year of watchful waiting," and the number of inoperable cases be reduced. We cannot hope for much advancement or the recording of a lowered mortality until the physician realizes that in every case of a tumor or new growth that there is something there that does not belong there and, if there is, to early cause its removal and not wait a whole year to watch its development. Again, we must add thereunto our efforts to cause every person to consult his physician twice a year and submit to thorough physical examination for the purpose of discovering these lesions when they are still localized processes. These two measures will, we believe, be most effectual in reducing the mortality in cancer until further etiological light is received.

The time spent in attending the Annual Meeting in Lansing will be the most profitable investment that you can make.

The light of publicity have caused the "quacks," illegal practitioners, and all allied cults to experience hard times. To maintain their nefarious practice they have been driven to diverse expedients in their effort to extort money from gullible individuals. The latest method comes from California and Parke, Davis Co. have been unwittingly drawn into it.

The plan employed was as follows: After a patient was given a perfunctory examination

he was told that he had this and that the matter with him and that certain serums or drugs would be required to cure him. These drugs, or serums, the patient would be informed, were very expensive and the money to pay for them would be demanded. To substantiate the claim of the high cost of the drugs the patient would be shown a drug catalogue in which these drugs were listed and the price for certain quantities quoted. It is here that the "smooth quack" showed his cunning. The patient would be shown one of Parke, Davis & Co.'s regular catalogues, which was doctored up by having printed page inserts pasted in. It was these printed pages containing serum and drug quotations that were shown to the prospective patient. To the druggist and the physician, familiar with the cost of these drugs, it will be apparent that the doctor, if able to make his patients bite, reaped a rich profit. We impart a few illustrations of these preparations and the prices thereon made by this imposture:

Specific Blood Poison—Syphilis.

Net prices

No. 1 per tube	\$31.75
No. 2 per tube	22.65
No. 3 per tube	12.50

Draft or Money order must accompany orders.

These tubes contained two drachms of sodium-arseno-cacodylate. Here is another specimen:

Special Rectal Suppositories.

Formula.

Powd. Ext. Cannabia Ind.....	Grs. ij.
Powd. Ext. Berberine	Grs. ij.
Powd. Ext. Witch Hazel	Grs. v.
Powd. Boracic Acid	Grs. v.
Glycerine	
Cocoa Butter aa.	q. s.

Each suppository put up in a glass bottle and twelve such suppositories in a box. Price per box of twelve suppositories \$21.36.

Some price.

These are but two examples of many such leaves that have been thus inserted in this firm's catalogue. Quoting from a letter from the attorney of the Board of Medical Examiners of California to Parke-Davis this paragraph is pertinent: "A number of ignorant individuals have been victimized in this matter. I am satisfied from our investigation that not only in California but in other states, the catalogue referred to is being thus used to fleece the unwary."

Of course the patients, many of whom had heard of the name and reputation of Parke, Davis, when shown one of their doctored catalogues quoting these exorbitant prices took for granted that they were paying for special medicines and serums and were readily induced to part with their money.

We are assured that Parke, Davis is maintaining a watchful outlook to show up all imposters.

Invite your brother physician and urge him to accompany you to the Forty-ninth Annual Meeting.

Just because we are not utilizing more space to say it in it is just as essential for you to continue conferring your patronage upon our advertisers. Better still, try and induce some firm to occupy space and thus increase their Michigan business.

The paper on the Purchasing of Drugs, found on another page in this issue contains many pertinent suggestions that should not be ignored. We would be glad to receive for publication other opinions upon this subject.

As a result of the movements that are being carried on to conserve the health of the public there has appeared an increased desire on the part of the public to accept our invitation to learn how they may best carry out these teachings. In view of this it is imperative that the physicians and surgeons of today keep abreast of the times. These enlightened patients will not trifle with or consult the physician who has not kept up with his profession. They will not be content with a linament for rheumatism when they know that it is more than a pain in a joint or muscle. They will not resort to nostrums when they ascertain that all stomach disorders are not dyspepsias. They will come to you, doctor, for advice and examination and will not be content with having you merely take their pulse and temperature and look at their tongue. They will expect and rightfully demand the benefit of the best and acknowledged methods for diagnosing and treatment, preventative or specific, and unless you are conversant as to these methods they will desert you and consult him who has taken the pains and time to acquire them. To this end then it is incumbent upon you to make use of the opportunities at your disposal and one of the most important is activity in your county and state society.

September 10 and 11 is "swarming time" for the medical men of Michigan. A careful perusal of the program will tell you why. You will return home a better doctor.

The activity of our Committee on Tuberculosis is beginning to gradually wane now that so many Anti-Tuberculosis organizations are in the field and are ably superintending the campaign that is being waged. It occurs to us that

our state society might now well turn its attention to the furthering of an Anti-Cancer Propaganda and initiate the movement by having a committee appointed to point out ways and means. With out present knowledge it cannot be expected that the morality rate in cancer will be lowered until the public are made acquainted with the fact that early consultation will bring detection of the disease and that the early removal of the lesion will prevent its spread or recurrence. To disseminate this knowledge requires publicity and it is the duty of our society to conduct this campaign of education and publicity. Individuals have done excellent work but the time has arrived when organized effort and endorsement is essential.

On another page the reader will find two interesting letters from Dr. Dodge who is traveling in Europe. We are sure that had the eastern war not interrupted the mail service we would have been able to publish later information pertaining to European conditions.

When the first frenzied extras imparted that many Americans were stranded and in want in Europe we were mindful of the fact that some fifty of our members were abroad. The matter was taken up with the senior senator from Michigan but he assured us that consuls and ambassadors would care for all American subjects. At any rate we were prepared to aid those in need by loaning them the funds of our Society.

While on this subject of the eastern war we cannot help but draw our members attention to the fact that *The Journal* is a personal loser by reason of this struggle. The advertising contracts have been cancelled because these firms' supplies from Europe have been stopped. As they have all been valued patrons we regret that necessity has compelled them to curtail their expenses and to cut out their advertising.

The sudden cessation of drug importations from Europe, owing to the war, has been seized upon in certain circles as an occasion for materially advancing the prices of standard therapeutic specialties, in some instances as much as 100 per cent.

Schering & Glatz desire to advise the medical profession that not a single one of their medicinal specialties has been increased in price and will not be as long as present supplies last.

There is therefore, absolutely no reason why patients should be made to pay any more than usual for their products.

We want to see you in Lansing on September 9-10-11.

Word comes to us that the State Anti-Tuberculosis Society is handicapped in its work for lack of funds. The Society's chief source of income is from the sale of Christmas seals. The organization wishes to put to work experienced field workers and organizers. The budget for the coming year calls for three thousand dollars more than is in sight. We think that every physician in the state should appreciate the need of this organization and should give it their moral and financial support. They cannot better do this than by responding promptly to the letters that will be sent by the president of that organization asking them to join the Society and to remit the membership fee of one dollar. This is everybody's work, yet the labor and expense of the campaign are born by comparatively few. It is the duty of the medical profession to respond to this appeal and do its share.

Correspondence

Hotel Cecil, Strand, London, England,

July 25, 1914.

Dear Dr. Warnshuis:

Received your letter on arrival here yesterday, and was much pleased to get it. News from home is very welcome when one has been away from home a month. I have had some trouble with a throat cough since landing and while in Edinburgh and Glasgow felt so poorly that I made no attempt to visit the hospitals. I am getting mended up now and expect to put in a full week at clinics next week. After the clinic week is over I will send you something concerning them if I can think of anything to say.

We made rather a complete tour of Scotland; in addition to the usual places of visit by American tourists we went up the Caledonian Canal to Inverness and visited an uncle of Mrs. Dodge in Laggan, a glen in Inverness-shire off the line of railroad, where he has served as minister of the Church of Scotland for the past 33 years. Laggan is in the heart of the highlands and a very interesting region. The ministers are better situated there than in the country districts of America and so we found his auto awaiting us at the nearest point on the railroad, and by that means had an opportunity to observe the character of the roads in the thinly settled and mountainous region of Scotland. In the words of Harry Lauder "They w'd mae your mouth water." In fact, all through the country we have found excellent macadam roads. In the highlands where houses were miles apart splendid stone roads could be seen from the train at all points. When we reached the manse I spoke of the roads remarking upon their excellence. My uncle replied, "well the government is beginning

to give them some attention, we hope they will soon be better". "Why", I said, "they are of stone and absolutely smooth, how could you have them better?" "Oh", he replied, "they are well enough now but you ought to see them after a rain." "Well they don't break through do they?" Evidently that proposition was something unheard of to him so he replied that they get a lot of mud on top and dirtied the bodies of the auto and that now the government was taking notice this would be stopped. Well they stop it by tarring the surface. That is the universal first class road through southern Scotland and parts of England that we have visited, macadam with tarred surface.

As the roads are all built the present problem is simply to keep them up and that is done by bearing in mind the old proverb "A stitch in time". The material used is simply liquid tar. It costs per ton about 40 cents per hundred square feet, and retarring is done as soon as spots begin to show that the tarred surface is getting thin. Crushed stone is also left along the roads and every hole is repaired during its early stages. Of course the application of the same principle of repairs to our dirt and gravel roads would make conditions with us much more tolerable than they are.

In Warwickshire practically every strip of highway and every street and alley in the villages is macadamized and has a tarred surface. Stratford-on-Avon was in the midst of retarring operations which they told me had to be repeated yearly on main traveled roads. In summer the main streets of Stratford are passed over by fully as many vehicles as on any main road leading out of Detroit. This type of road constructions seems to have been universally adopted here for country roads and for most cities outside of the very large cities. I have seen also many such streets in London and many downtown streets have wooden blocks creasoted. Brick pavement is seen but rarely.

After "doing" Scotland we crossed to Belfast and I saw a little of Ireland going from Dublin to Holyhead, thence to Chester, a quaint old city built by the ancient Romans with the protective wall around it which has been preserved. It affords a promenade about two miles long with the present city on both sides of the wall. The shops of the city that are most fashionable are located on two streets of the old city, called the Rows, and are on the second floor, a continuous walk permitting passage from one to the other but along the fronts of the second story. From Chester to Stratford-on-Avon, where three days were devoted to Warwickshire driving out and back from Stratford.

Two old castles are mentioned in the guide book as possessing special interest in Warwickshire,—Kenelworth and Warwick. At Kenelworth we were charged six pence admission and found nothing but ruins, a few stone walls and one old watch tower, with no roofs to anything, being all that is left. It is not worth a six pence unless one is

possessed of sufficient imagination to enable him to stand on the tower, look over the old outlines and spacious halls in which Leicester entertained Queen Elizabeth. Warwick Castle is a different proposition. Lord Brooke is owner, being an adherent of Cromwell. The castle met a far different fate than its neighbor Kenelworth which that doughty free booter destroyed. Warwick Castle is still in good condition and the owner needing the money a very tidy show business is conducted there. A very fair linguist passes through a half dozen large rooms that the family have no present need of and explains all about some VanDyke and near VanDyke portraits of sundry pleasant gentlemen and ladies of "ye olden times", who were nearly all beheaded by the same old Cromwell whose death mask also adorns one of the walls. Incidentally some old furniture is pointed out, some of it in a fair state of preservation, and all this you are charged 50 cents for, and permitted to buy all the postal cards you may wish at a penny each. We found more than fifty tourists going through and met a long string when we were leaving and concluded that it was a paying show.

Then we came to London. Living had been so cheap in Scotland, Ireland and upper England that we had come to the conclusion that life over here was "one grand sweet song" in which but moderate compensation was derived for supplying the necessities and many of the luxuries of life. A rude awakening took place in London. First at the theatre where more than New York prices are charged, and then you have to pay a sixpence for a measly advertising program. The first purchase of theatre tickets made one feel at home once more, and at the hotel the sign "American Plan" awakened memories of "The Pantlind" and so I took a "Manhattan," found it palatable and at once settled down and prepared to commence work getting back to an interest in things surgical.

The Americans are coming in rapidly and I will write you later about the congress.

Yours truly, W. T. DODGE.

July 25, 1914.

The registration rooms at the Hotel Cecil were open this afternoon for the Clinical Congress and program for Monday's clinics imparted. A very good arrangement for issuing tickets has been adopted and the first to come each afternoon will have his choice until the tickets for the most popular clinics are exhausted. Only tickets to the comfortable capacity of the various operating rooms will be issued. I had the pleasure of meeting Dr. Hutchinson of Grand Rapids, today. He has been here for some time and with him I attended the out patient department of St. Peters this afternoon and witnessed the examination work of Wm. Thomson Walker, who is an expert in cystoscopic work and in bladder and renal surgery. Mr. Walker is very courteous to visitors and afforded us abundant opportunity to examine his cases and

to personally use his cystoscopes. One point brought out, that is new to me, is that many cases of acute renal colic are due to kinking and obstruction of the ureter and not to calculi. One case came in that had previously been operated for pronounced hydro-nephrosis in which the cause was found to be an obstructed ureter from invagination into the pelvis of the kidney and consequent narrowing of the calibre. He effected a cure by splitting the ureter and passing sutures as in pyloroplasty. Dr. Walker also pointed out that urotopine is valueless as an urinary antiseptic unless the bladder urine is acid in reaction. I am convinced that Mr. Walker does a very high grade of work and any one doing genito-urinary work will do well to follow his methods.

July 27th.

Today I saw Mr. E. M. Corner, at Great Ormond Street Hospital in the morning, and Sir Arbuthnot Lane at Gray's in the afternoon. Mr. Corner had an inguinal hernia, appendicectomy, spina-bifida and talipes cases. He is a very nice operator and follows the essentials of asepsis closely, although many of the fine points observable in most American clinics are here noticeable by their absence. Mr. Corner uses no antiseptics on his hands but washes them vigorously in tap water. He does not remove his vest nor high starched collar, and neither does he perspire sufficiently to wilt the collar. He wears gloves and both he and his assistants avoid handling the wound or anything that comes in contact with the wound with their hands. Sir Lane performed two colectomies, one of them for pyloric obstruction without touching the pylorus. He believes that all disease except cancer is caused by the intestine stasis and that the cure is to short circuit and remove the then useless large bowel. He objects to the term Lane's kink or Jackson's membrane, or any other designation for which he calls normal peritoneal bands around the caecum. He removes the large bowel for goitre, rheumatoid arthritis, tuberculosis, or in fact for any disease except cancer. He presented skiagraphs of a case of tuberculosis of the lungs, one of the wrist and one of the mesenteric glands which he claims is rapidly recovering since the removal of the large bowel. A discussion of intestinal stasis is set down for Friday evening. At the Presidential meeting tonight the large hall in the Cecil was crowded and a most enjoyable session was held.

July 28.

The distribution of tickets for the following day's clinics commences at five p. m. The accommodations at all of the operating rooms is small as compared with those in our large American cities and to afford room for 1200 visitors here is a much greater task than to care for 3000 in New York. Consequently the rush for tickets at the most popular clinics is becoming strenuous. No favors are shown and the first to come are the first served.

This morning I saw Mr. Kellock at Middlesey. I saw Mr. Kellock and the backs of some of his assistants, but little else. He had hernias, genu valgum and cleft palate. He believes that the proper treatment of the sac is the great problem in hernia and places very few sutures in the abdominal wall, doing nothing at all with the cord. He divided the femur in the genu valgum case with a saw subcutaneously and applied a very rough splint to the leg. His aseptic technic was noticeable by its absence. As a contrast, in the afternoon Mr. Waugh at the Children's hospital exhibited a very fine technic and gave an exhibition of skilled surgical procedure. He had a twelve weeks old babe without a bladder, the ureters being exposed near the pubes, and performed a beautiful operation in transplanting them to the colon. Evidently his reputation was unknown to a great many for only eleven appeared in his audience, but as Mr. Stiles of Edinburgh, and Charlie Mayo were in the number, the element of quality existed to compensate for lack of numbers. He had several appendicectomies and one case of enlarged cervical glands. The glands were removed under local anesthesia, and one of the appendicectomies was attempted under spinal anesthesia, but it finally became necessary to give ether. He also took us through the wards and presented a large number of interesting cases.

July 29.

Mr. Bonney, at Chelsea, had a large clinic this morning presenting several hysterectomies, ovariectomies, a Cesarean section and perineorrhaphy. He is a very rapid operator and utilizes but one assistant, using the Reverdin needle and carrying the ligature material on spools attached to his wrists by means of rubber hands. Asepsis is thoroughly carried out. His perineorrhaphy does not follow the accepted American procedure of the present day as he does not take up the levator ani muscles and restore them to their proper position. His abdominal work is fine.

In the afternoon, at St. Peters, Mr. Freyan had two suprapubic prostatectomies and one litholpaxy. In the same room Mr. Thomson Walker did a prostatectomy, lithopaxy and removed a papilloma from the bladder. Freyan apparently gives little attention to asepsis but operates very rapidly and in each case removed the prostate within six minutes. He does a beautiful operation. Mr. Walker, on the other hand, is a very neat gentleman, operates with gloved hands and seemingly enucleated the prostate quite as easily as his colleague did with his bare hands. The removal of the papilloma, which was of large size, was very beautiful. He makes a large incision in the bladder and with special retractor gives a beautiful view of the interior of the organ, removing the papilloma under plain view and without hemorrhage of any account. He first passes sutures through the bladder wall outside of the papilloma and by this means makes

a practically bloodless operation. Dr. John Murphy and Mr. Stiles attended this clinic. A democratic spirit pervades the clinics and great surgeons like these men stand up in the back rows frequently and take their chance with the rest of us.

At St. Peters work was suspended at 3:30 while all hands partook of "tea" and "cigarettes." The afternoon "tea" habit here is generally observed. "Tea", however, may be coffee if one prefers it, and always includes sandwiches and cakes. It seems to be quite popular with the Americans.

At the general meeting this evening Dr. Charles Mayo read a paper and received an ovation, President Murphy introducing him as "Dr. Chas. Mayo of the world."

July 30.

This day has been spent at St. Thomas Hospital. In the morning Dr. Walter Tate presented several cases of hysterectomies and ovariectomies. He is a fine but slow operator and utilizes a large number of assistants. His cases presented no features of special interest. Mr. Wallace in the afternoon, presented cases of amputation of the breast and prostatectomy, also cystotomy for prostatic stone. He is a careful and painstaking operator. St. Thomas Hospital is a large institution on the Thames, opposite the houses of Parliament. There are eight large buildings besides the colleges buildings. They had 10,000 patients last year of whom only 600 were pay patients. The Florence Nightingale Training School for Nurses is connected with this hospital, famous as the first nurses' training school ever established in connection with a hospital. There are 260 student nurses and the course is of five years' duration. The operating rooms in this hospital are new, well constructed and afford accommodations for about fifty visitors, three or four rooms built in pairs so that visitors can easily pass from one to the other.

July 31.

In the morning the new Kings College Hospital was visited. It is not yet completed but a portion of it is in commission. It is considered a modern hospital and has fine operating rooms and good laboratories and X-Ray rooms. When completed it will accommodate 600 patients. Mr. T. P. Legg operated on a thyroid adenoma by partial removal of the gland and removed some cervical glands. In the afternoon I visited the London Hospital which has the most elaborate operating room facilities I have seen in London. An entire floor is devoted to operating rooms, anesthetizing rooms, etc. It was constructed with a special bequest of some 13000 pounds. Sir Frederick Ere had a very interesting clinics of gastric and duodenal ulcers for which he performed gastro-duodenostomy. His methods are much like the methods most followed in America. Operators here seem to in many cases be influenced by the traditions of the hospital with which they are connected. At Kings this morning the anesthetizer, who is quite an old man has held

the position for forty years, said that chloroform was often given, the A. C. E. mixture usually, ether alone rarely and local anesthesia never. He said the traditions of the hospital were opposed to local anesthesia with an air that such being the case the matter was settled. So in the matter of suture material, silk is quite generally used for all purposes, including skin closure and when cat gut is used it is generally chromicized, but at Sir Thomas iodized cat gut is used and is prepared in the hospital. Silk and silk worm gut are used when specially indicated.

As a general proposition asepsis is not carried out in the same way as it is in America. It may be just as efficient but does not appear so. A few men, however, as I have mentioned in notes are very scrupulous.

This evening practically wound up the Congress. Dr. Chas. Mayo was elected President last evening and tonight a very interesting discussion was held upon intestinal stasis. Tomorrow only a very few clinics are announced and only one prominent man appears on the list. The day will be devoted largely to leave taking. If a general war is not declared before tomorrow night we shall leave for Holland, Germany, Switzerland and France. War rumors are very alarming today.

With best regards to all friends,

Yours truly,

W. T. DODGE.

Deaths

Dr. Jacob J. Fabian, stricken with cramps while in bathing, was drowned in Reeds Lake, near Grand Rapids on July 28th. Dr. Fabian was secretary of the Kent County Medical Society. The burial took place in his old home in Alabama. Some seventy-five Grand Rapids physicians attended the brief funeral services that were held in Grand Rapids before the body was sent to his former home; the honorary and active pall-bearers were composed of members of the Kent County Society.

Dr. Dryden H. Lamb died at his home in Owosso August 4th of Brights disease. Dr. Lamb was a specialist of eye, ear, nose and throat diseases and was one of the most prominent and highly respected citizens of Owosso. He was ex-president of the Shiawassee County Medical Society.

Dr. Edgar Byron Smith, for years a practitioner in Detroit, died August 11th of septic poisoning, contracted through a cut on the hand while operating on a patient. Dr. Smith was

secretary of the faculty and professor in the Michigan College of Medicine & Surgery and president of the board of trustees of the Boulevard Sanitarium. He has been a member of the Michigan State Medical Society since the year 1906.

State News Notes

Dr. George A. Trizisky of Detroit recently underwent an operation for appendicitis and is reported as convalescent.

The Solvay General Hospital has been taken over by the Harper Hospital of Detroit and will be continued as a branch of the latter institution.

Dr. Angus McLean, Milton J. Robb and A. W. Blain of Detroit arrived home on Aug. 11 after having attended the Surgical Congress in London.

Dr. W. W. Lang, of Kalamazoo, who suffered an electrical shock from 3000 volts while using a telephone, is reported as having rapidly recovered.

Dr. D. McKeller of Hillsdale submitted to the amputation of his right leg on account of a septic infection. Our latest reports are that he is progressing satisfactorily.

Dr. Carl D. Camp of Ann Arbor announces that he has removed his office to 304 S. State St., Ann Arbor. His practice is limited to diseases of the nervous system.

Dr. W. Northrup of Grand Rapids announces that he has withdrawn from general practice and that in the future he will devote all his time to laboratory diagnosis. He is located in the Metz building.

Dr. A. E. Hinsdale of Bay City has accepted the appointment of professor of materia medica and therapeutics in the homeopathic department of the Ohio university.

The frame superstructure of the new \$300,000 U. B. A. Hospital in Grand Rapids is complete. It is estimated that the building will be ready for occupancy early in the fall of 1915.

Dr. Elizabeth Barrette of Kalamazoo has been appointed medical school inspector to succeed Dr. C. B. Fulkerson, resigned. Under Dr. Fulkerson's able direction the medical inspection of the schools of Kalamazoo has been raised to a high degree of efficiency.

Butterworth Hospital, Grand Rapids, has just completed and fully equipped a modern laboratory and has secured the services of a full time director.

The institution is also adding an addition that will be devoted entirely to caring for medical and surgical diseases of children.

Many of our Michigan physicians who attended the Clinical Surgeon's Congress in London and others who had planned spending some time in pursuing various lines of study on the continent have had their plans interfered with by reason of the outbreak of war and thus were compelled to return home. We have not learned of any who have undergone any particular hardships or been unreasonably detained.

Dr. H. Ostrander, president of the Michigan Society for the Prevention and Relief of Tuberculosis announces that the annual meeting of that organization will be held in Muskegon on Nov. 6 and 7. The meetings will be addressed by a number of speakers of national repute and the two days session will be filled with interesting discussions of the problems that confront the organization.

We failed to receive a report of the annual meeting of the Upper Peninsula medical society that was held on Aug. 11 and 12. The report of the meeting as well as a number of the papers that were read will appear in our next issue. We are sorry that we were compelled to go to press at such an early date and thus were prevented from publishing the proceedings in this issue. Dr. Guy L. Kiefer of Detroit attended the meeting as representative of the state organization.

Robert Louis Stevenson (himself a master of the art of omission) writes in one of his letters: "There is but one art—to omit! Oh, If I knew how to omit, I would ask no other knowledge. A man who knew how to omit would make an Iliad of a daily newspaper." When all medical writers have learned to omit the useless, the trite, the insignificant and the irrelevant, many manuscript editors will find their occupation gone; but private misfortune will pass unnoticed amid the general rejoicing. It takes a long while to learn to be brief; but, on the other hand, nothing will more effectively extend the average span of life than general mastery of the art of omission—in medical literature, at least. Nothing personal is intended by this but it might be well to bear the above in mind when discussing a paper at our annual meeting; the same thought may be also applied to our essayists.

County Society News

BENZIE COUNTY

On August 5th, as the guests of the Benzie County Medical Society, a number of members of the Manistee and Tri-County societies met in Beulah, on the shore of Clear Lake and enjoyed a most pleasant and profitable evening.

At 6:30 the members sat down to an enjoyable dinner which disposed of, was followed by the reading and discussion of papers that were both timely and practical. That real interest was manifest is witnessed by the fact that adjournment did not occur until midnight.

Dr. F. C. Warnshuis, our state secretary was present and made the acquaintance of those in attendance.

E. J. C. ELLIS, Secretary.

GRATIOT COUNTY.

The monthly meeting of the Gratiot County Medical Society was held Tuesday, August 4th at 2 p. m., and the following program was carried out:

Reading minutes of last meeting.

Clinic:

Paper: "The Conduct of Normal Labor in the Average Home." Dr. M. C. Hubbard.

Paper: "The Management of Abnormal Presentations. Including Post Partum Hemorrhage."

Dr. F. J. Graham.

Paper: "Obstetrical Operations Including Forceps." Dr. I. N. Brainerd.

In the absence of Dr. R. G. Dean, President Monfort called upon Dr. W. M. Weller to outline the care of the pregnant woman before labor.

Dr. C. B. Gardner opened the discussion of all the papers.

The Society voted to have a basket picnic on Sept. 1 in place of the regular meeting.

E. M. HIGHFIELD, Secretary.

Wine of Cardui.—While the Chattanooga Medicine Company asserts that in the manufacture of Wine of Cardui no more alcohol is used than is necessary to preserve it, experiments indicated that the preparation contains only water-soluble constituents and that a non-alcoholic preparation might easily be prepared. Also, despite the owner's assertion that Wine of Cardui cannot be used as a tipple, large doses were taken experimentally with no observable effects other than those of alcohol; further, letters from physicians assert that the preparation is used habitually, evidently for its alcohol effects—probably unconsciously. The exploitation of Wine of Cardui is vicious and the public should be apprised of the facts (*Jour. A.M.A.*, July 18, 1914, p. 258.)

Vaccine and Serum in Hay-Fever.—A serum for the treatment of hay-fever is described in New and Nonofficial Remedies. Theoretically there can be no vaccine treatment of this disease for the reason that it is produced, not by bacteria but, by the pollen of various plants. The use of vaccines derived from the micro-organisms found in the nasal secretion are still in the experimental stage (*Jour. A.M.A.*, July 25, 1914, p. 340.)

OFFICIAL PROGRAM

49th Annual Meeting Michigan State Medical Society at Lansing, Ingham County

Sept. 9-10-11, 1914

OFFICIAL CALL.

The Forty-Ninth Annual Meeting of the Michigan State Medical Society will be held in Lansing, Ingham County, Michigan, on Thursday and Friday, September 10th and 11th, 1914.

The House of Delegates will convene at 8 a .m. on September 10th. The Council will meet in regular session on Wednesday evening, Sept. 9th, at 8 p. m.

The Sixth Annual Meeting of the County Secretaries Association will be held on Wednesday afternoon, Sept. 9th, at 2:30 p. m.

Guy Lincoln Kiefer, President.

Frederick C. Warnshuis, Secretary.

PLACE OF MEETING.

The General Session, the House of Delegates and all Scientific Sections will meet in the Capitol Building. The exhibitions will also be located in this building. The County Secretaries Association will meet in the Senate chambers on Wednesday afternoon, Sept. 9 at 2:30 p. m. The first session of the Council will be held in the parlors of the Downey House on Wednesday evening, Sept. 9th, at 8 p. m.

THE COUNCIL.

Chairman, William T. Dodge, Big Rapids.
Vice-Chairman, A. E. Bulson, Jackson.
Secretary-Ex-Officio, Frederick C. Warnshuis, Grand Rapids.

MEETINGS.

Wednesday, September 9th, at 8 p. m.

Thursday, September 10th, at 12 m.

Friday, September 11th, at 12 m.

HOUSE OF DELEGATES.

Chambers of the House of Representatives.

President, Guy Lincoln Kiefer, Detroit.

Secretary, Frederick C. Warnshuis, Grand Rapids.

By-Laws—Chapter IV, Section 1. Each component county society shall be entitled to send to the House of Delegates each year one delegate and one alternate for every fifty members, and one delegate for each major fraction thereof: but each county society holding a charter from this society, which has made its annual report as provided in the Constitution and By-Laws, shall be entitled to one delegate and one alternate.

FIRST SESSION, THURSDAY, SEPT. 10TH.

8.00 A. M. Sharp.

Order of Business:

1. Call to order by the President.
2. Roll Call.
3. Report of Committee on Credentials.
L. J. Hirschman, Chairman.
4. Reading of minutes of last Annual Meeting.
5. Report of the Council.
A. E. Bulson, Vice-Chairman, Jackson.
6. Report of the Committee on Legislation and Public Policy.
A. M. Hume, Owosso, Chairman.
7. Report of Committee on Public Health Education.
Walter H. Sawyer, Hillsdale, Chairman.
8. Report of Committee on Study and Prevention of Tuberculosis.
T. M. Koon, Grand Rapids, Chairman.
9. Report of the Committee to Encourage the Systematic Examination of the Eyes and Ears of School Children Throughout the State.
W. R. Parker, Detroit., Chairman.
10. Report of the Committee on Medical Education.
A. M. Barrett, Ann Arbor, Chairman.
11. Report of the Committee on Venereal Prophylaxis.
A. P. Biddle, Detroit, Chairman.

12. Report of Delegates to A.M.A.
L. J. Hirschman, Detroit.
13. Report of the Committee on Specialties.
Emil Amberg, Detroit, Chairman.
14. Report of the Committee on Fee Schedule.
C. H. Hitchcock, Detroit, Chairman.
15. Election of Committee on Nominations.
The duty of this committee is to nominate:
 - (a) 1st, 2nd, 3rd and 4th Vice-Presidents.
 - (b) To nominate two delegates and two alternate delegates to the American Medical Association to succeed L. J. Hirschman and C. E. Boys.
 - (c) To fix the place of meeting for 1915.

By-Laws—Chapter VI, Section 2. The House of Delegates shall elect annually, at its first meeting, a Nominating Committee of five from the House of Delegates; no two of whom shall be from the same Councilor District.

16. Appointment of Business Committee and other working committees by the President.
17. Miscellaneous Business.
 - (a) Recommendations to the Council.
 - (b) Proposal of amendments to the Constitution and By-Laws.
18. New Business.
19. Adjournment to General Session.

SECOND SESSION, FRIDAY, SEPT. 11TH.

S A. M. Sharp

1. Roll Call.
2. Reading Minutes.
3. Report of Business Committee.
4. Report of Appointed Committees.
5. Report of Committee on Nominations.
6. Election of Officers.
7. Unfinished Business.
8. Miscellaneous Business.
9. Adjournment *sine die*.

HOUSE OF DELEGATES.—DELEGATES AND ALTERNATES TO THE FORTY-NINTH ANNUAL MEETING.

Note.—The black-face type is that of the delegate; the other that of the alternate.

ALPENA—Branch No. 46

C. M. Williams, Alpena.
E. E. McKnight, Alpena.

ANTRIM—Branch No. 65

(One delegate.)

BARRY—Branch No. 26

G. W. Lowry, Hastings.
C. S. McIntyre, Woodland.

BAY—Branch No. 4.

(One delegate.)

BENZIE—Branch No. 59

C. P. Doyle, Frankfort.
E. J. C. Ellis, Benzonia.

BERRIEN—Branch No. 50

N. A. Herring Benton Harbor.
J. W. Kistner, Berrien Springs.

BRANCH—Branch No. 9

E. E. Hancock, Girard.
D. H. Wood, Coldwater.

CALHOUN—Branch No. 1

S. K. Church, Marshall.
Jas. T. Case, Battle Creek.

CASS.

Wm. C. McCutcheon, Cassopolis.
Herman L. Loupee, Vandalia.

CHARLEVOIX—Branch No. 37

(One delegate.)

CHEBOYGAN—Branch No. 58

W. F. Reed, Cheboygan
S. A. St. Armour, Cheboygan.

CHIPPEWA—Branch No. 35

F. G. Fox, Pickford.
H. E. Perry, Newberry.

CLINTON—Branch No. 39

J. B. Taylor, Ovid.
A. O. Hart, St. Johns.

DELTA—Branch No. 38

A. S. Kitchen, Escanaba.
G. W. Moll, Foster City.

DICKINSON-IRON—Branch No. 56

(One delegate.)

EATON—Branch No. 10

H. C. Rockwell, Dimondale.
C. D. Huber, Charlotte.

EMMET—Branch No. 41

A. E. Runyan, Harbor Springs.
J. J. Reycraft, Petoskey.

GENESEE—Branch No. 24

W. G. Bird, Flint.
H. A. Stewart, Flint.
H. Cook, Flint.
H. D. Knapp, Flint.

GOGEBIC—Branch No. 52

C. E. Stevens, Ironwood.
W. J. Pinkerton, Bessemer.

GRAND TRAVERSE-LEELANAU. Branch No. 18

Frank Holdsworth, Traverse City.

GRATIOT—Branch No. 25

C. B. Gardner, Alma.
I. N. Brainerd, Alma.

HILLSDALE—Branch No. 3

Bion Whelan, Hillsdale.
H. H. Frazier, Hanover.

HOUGHTON—Branch No. 7.

A. I. Lawbaugh, Calumet.
A. F. Fischer, Hancock.

HURON—Branch No. 47

S. B. Young, Caseville.
A. E. W. Yale, Pigeon.

INGHAM—Branch No. 40

L. W. Toles, Lansing.
B. M. Davey, Lansing.
M. L. Holm, Lansing.
J. G. Rulison, Lansing.

IONIA—Branch No. 16

J. F. Pinkham, Belding.
G. A. Stanton, Belding.

ISABELLE-CLARE—Branch No. 54

A. T. Getchell, Mt. Pleasant.
C. D. Pullen, Mt. Pleasant.

JACKSON—Branch No. 27

C. D. Munroe, Jackson.
T. E. Hackett, Jackson.

KALAMAZOO—Branch No. 64

G. F. Inch, Kalamazoo.
C. E. Boys, Kalamazoo.
F. E. Penoyer, South Haven.
Malcolm Smith, Allegan.
A. S. Youngs, Kalamazoo.
L. A. Rogers, Galesburg.

KENT—Branch No. 49

T. M. Koon, Grand Rapids
J. D. Brook, Grand Rapids.
C. C. Slemmons, Grand Rapids.

LAPEER—Branch No. 23

(One delegate.)

LENAWEE—Branch No. 51

A. W. Chase, Adrian.
O. Whitney, Jasper.

LIVINGSTON—Branch No. 6

H. G. Huntington, Howell.
B. H. Glenn, Fowlerville.

MACOMB—Branch No. 48

H. F. Taylor, Mt. Clemens.
V. H. Wolfson, Mt. Clemens.
J. M. Croman, Mt. Clemens.
H. G. Berry, Mt. Clemens.

MANISTEE—Branch No. 19

H. D. Robinson, Manistee.
J. A. King, Manistee.

MARQUETTE-ALGER—Branch No. 28

H. W. Sheldon, Negaunee.
A. W. Hornbogen, Marquette.

MASON—Branch No. 17

(One delegate.)

MECOSTA—Branch No. 8

Jos. McNeece, Morley.
H. B. Weaver, Mecosta.

MENOMINEE—Branch No. 55

T. B. Phillips, Menominee.
Edw. Sawbridge, Stephenson.

MIDLAND—Branch No. 43

Frank A. Towsley, Midland.
Gust Sjolander, Midland.

MONROE—Branch No. 15.

Wm. F. Acker, Monroe.
P. S. Root, Monroe.

MONTCALM—Branch No. 13

A. W. Woodburne, Entrican.
W. H. Lester, Greenville.

MUSKEGON-OCEANA—Branch No. 61

V. A. Chapman, Muskegon.
F. B. Marshall, Muskegon.

NEWAYGO—Branch No. 50

N. De Haas, Fremont.
Willis Geerlings, Reeman.

OAKLAND—Branch No. 5

Wm. McCarroll, Pontiac.
R. Y. Ferguson, Pontiac.

O. M. C. O. R. O.—Branch No. 11

C. C. Curnalia, Roscommon.
L. A. Harris, Gaylord.

ONTONAGON—Branch No. 66

(One delegate.)

OSCEOLA-LAKE—Branch No. 30

A. Holm, Leroy.
H. L. Foster, Reed City.

OTTAWA—Branch No. 32

D. G. Cook, Holland.
Wm. De Kleine, Grand Haven.

PRESQUE ISLE, Branch No. 63.

(One delegate.)

SAGINAW—Branch No. 14

Robt. McGregor, Saginaw.
A. R. McKinney, Saginaw.
W. A. DeFoe, Saginaw.
L. B. Harris, Saginaw.

SANILAC—Branch No. 20

Geo. S. Tweedie, Sandusky.
Jas. W. Scott, Sandusky.

SCHOOLCRAFT—Branch No. 57

S. H. Rutledge, Manistique.
Andrew Nelson, Manistique.

SHIAWASSEE—Branch No. 33

D. H. Lamb, Owosso.
T. B. Scott, Owosso.

ST. CLAIR—Branch No. 45

W. B. James, Port Huron.
S. K. Smith, Port Huron.

ST. JOSEPH—Branch No. 29

J. H. Moe, Sturgis.
D. V. Runyan, Sturgis.

TRI-COUNTY—Branch No. 62

W. B. Wallace, Manton.
S. C. Moore, Cadillac.

TUSCOLA—Branch No. 44

F. P. Bender, Caro.
B. C. Bradshaw, Mayville.

WASHTENAW—Branch No. 42

John A. Wessinger, Ann Arbor.
Theophil Klingman, Ann Arbor.
Conrad George, Jr., Ann Arbor.
Conrad George, Sr., Ann Arbor.

WAYNE—Branch No. 2

E. B. Smith, Detroit.
J. E. King, Detroit.
L. J. Hirschman, Detroit.
J. W. Vaughan, Detroit.
H. R. Varney, Detroit.
A. W. Blain, Detroit.
C. W. Stockwell, Detroit.
Fred Cole, Detroit.
W. D. Ford, Detroit.
Guy Connor, Detroit.
E. K. Cullen, Detroit.
J. B. Bell, Detroit.
John Dodds, Detroit.
Rollin Parmeter, Detroit.
G. P. Myers, Detroit.
F. B. Walker, Detroit.
P. M. Hickey, Detroit.
E. G. Martin, Detroit.
C. E. Simpson, Detroit.
M. V. Meddaugh, Detroit.
F. B. Tibbals, Detroit.
C. H. Oakman, Detroit.
J. Van Amberg Brown, Detroit.
R. L. Clark, Secretary, Detroit.

GENERAL MEETING.

House of Representative Chambers.
Thursday, September 10th,

10:00 A. M.

President, Guy Lincoln Kiefer, Detroit.
Secretary, Frederick C. Warnshuis, Grand Rapids.

1. Call to order by President.
2. Invocation. Rev. James S. Williamson.

3. Address of Welcome.

Governor Woodbridge N. Ferris.

4. Address of Welcome by Samuel Osborn, President Ingham County Society.
5. Response on behalf of the Society by President, Guy L. Kiefer.
6. Report of Committee on Arrangements.
E. W. Toles, Lansing.
7. Report of House of Delegates.
F. C. Warnshuis.
8. Annual Address of the President. "The Modern Practice of Medicine." Guy Lincoln Kiefer.
9. Address by invited guests:
Dr. M. P. Ravenel, Madison, Wis.
Dr. Cressy L. Wilbur, Chief Vital Statistician, New York Board of Health.
Dr. Victor C. Vaughan, Sr., Ann Arbor.
Hon. Judge Alfred Murphy, Detroit.
Rabbi Leo M. Franklin, Detroit.
Dr. Walter H. Sawyer, Hillsdale.
10. The Origin and Prevention of Mal-Practice Cases.
Herbert M. Barbour, Esq., Detroit.
11. Miscellaneous Business. Under this head there will be a general discussion of questions of medical economics. The opportunity is presented to every member to bring before the Society any subject of general interest, either by informal discussion or formal resolution.
12. Nominations for President for 1914-15.
13. Adjournment.

SECOND GENERAL MEETING.

Friday, September 11th,

11:30 A. M.

1. Reading of Minutes.
2. Unfinished Business.
3. Report from the House of Delegates.
4. Miscellaneous Business.
5. Announcement of result of ballot for President.
6. Introduction and Installation of the President-elect.
7. Resolutions.
8. Adjournment *sine die*.

SCIENTIFIC SECTION MEETING.

By-Laws—Chapter III., Section 3. Except by special vote the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed. No paper shall be read by title nor read by an other person than its author, except as a result of sickness of the author, or by the unanimous vote of the Section to which it belongs.

Sec. 4. No address or paper before the Society, except that of the President, shall occupy more than fifteen minutes in its delivery; and no mem-

ber shall speak more than five minutes or more than once on any subject.

Sec. 5. All papers read before the Society shall be its property. Each paper read shall be immediately deposited with the Secretary of the Section.

SECTION ON GENERAL MEDICINE.

Chairman—M. A. Mortensen, Battle Creek.

Secretary—Benj. A. Shepard, Kalamazoo.

First Session Thursday Afternoon, Sept. 10.

1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

1. Chairman's Address.

Benj. A. Shepard, Kalamazoo.

2. "Gastric and Duodenal Ulcer."

E. L. Eggleston, Battle Creek.

SYNOPSIS:

Etiology—A review of the later theories. No one theory is sufficient to account for these cases as the causes are probably many. Insufficient attention to dietetic errors. The role played by functional nervous disturbance.

Treatment—In their primary state gastric and duodenal ulcer respond readily to treatment. They are surgical only when complications exist or in their chronic state. The great advantage of early diagnosis and treatment. The necessity of insisting upon a careful regime to be followed for months, if not for years, following the initial treatment.

3. "South Haven's Experience in Calcium Hypochlorite Treatment of Lake Water."

Francis C. Penoyer, South Haven.

SYNOPSIS:

Comparison of typhoid rates in lake and inland cities, United States and foreign countries. Great Lakes as etiologic factor in typhoid fever in America. Duties of the profession in educating the public. Typhoid rates in South Haven before and after treating water. Description of system and difficulties encountered. Establishment of municipal laboratory and report on daily findings. Purification of private supply.

4. "Practical Methods for Determining Cardiac Irregularities." Hugo A. Freund, Detroit.

5. "Roentgenology of the Heart."

Lantern Slide Demonstration.

A. W. Crane, Kalamazoo.

SYNOPSIS:

The Roentgen factors in the examination of the heart are: (1) Position of heart within thorax; (2) Form of whole and

relative form of each chamber; (3) Size of whole and relative of each chamber; (4) Presence of fluid in pericardial sac; (5) Heart movements. Pulsations of each auricle and ventricle from specified angles. Observations on simultaneous movements of two, three or four chambers compared with polygraphic tracings and electro-cardiograms. Simultaneous auscultation and the visualization of the pulsations of the cardiac chamber. The X-Ray screen in the dark-room is the moving picture screen of clinical diagnosis.

Second Session, Friday Morning, Sept. 11th.

9 A. M.

6. "The Non-operative Management of Surgical Affections of the Prostate Gland."

Arthur E. West, Kalamazoo.

SYNOPSIS:

Importance of this phase of treatment. Necessary equipment. A consideration of the various pathological conditions encountered and measures for their relief.

7. "Syphilis of the Nervous System."

Wesley Taylor, Detroit.

SYNOPSIS:

Prevalence of Syphilis: Speculation as to its origin and as to its introduction into Europe as well as into Asia and other parts of the world. As a disease of animals and its communication to men and vice-versa. Immunity acquired through repeated inoculations, and virulent in virgin races.

Present status of our knowledge regarding the etiology of the malady, due to inoculation into animals. Tests in use to determine its presence or absence in mankind.

Syphilis in locomotor ataxia or locomotor ataxia merely a form of syphilis. Paresis merely a manifestation of syphilis of the brain.

Syphilis in progressive muscular atrophy, in certain forms of neurasthenia and epilepsy. Hydrocephalus and congenital idiocy probably due to syphilis in the parents, as well as congenital mental deficiencies. Myelitis, neuritis, tumors, apoplexy, etc. in relation to the lues.

Syphilis and the alien races, and why they escape the effects of the so-called "para-syphilitic" diseases.

The Wasserman reaction, of the blood—of the cerebro-spinal fluid. The Noguchi test. The bearing of these tests on the treatment of syphilis and allied diseases.

8. "The Serology and Treatment of Luetic Disease of the Nervous System."

Chas. W. Hitchcock, Detroit.

SYNOPSIS:

Discussion of laboratory methods and their needs, The Wasserman, Noguchi, Nonne-Apelt, reactions. The spinal fluid; the modern treatment of syphilis of the nervous system, especially tabes, taboparesis, and paresis. The therapy of Salvarsan.

9. "Biological Foundation for Mendel's Laws of Heredity."

Prof. L. H. Harvey, Kalamazoo.

SYNOPSIS:

The individual organism is an aggregate of determinate characteristics. These heritable entities are designated Unit characters. They obey a definite principle in transmission known as Mendel's law. This law has its foundation in the cytological processes of gametogenesis. By means of slides unit characters and their behavior will be illustrated, the law of Mendel developed, gametogenesis and segregation shown and certain conclusions as to the social application of these facts presented.

Third Session, Thursday Afternoon, Sept. 11.

1:45 P. M.

Election of officers.

10. "The Early Diagnosis of Tuberculosis."

E. B. Pierce, Howell.

SYNOPSIS:

In spite of the universal agitation against tuberculosis, the question of a diagnosis sufficiently early to enable the patient to take up the means of cure, when the prognosis is decidedly favorable, still retains its important position.

The history, physical examination and special examinations present the data which must be considered.

11. "Infantile Sensitization to Egg Albumen."

Herbert M. Rich, Detroit.

SYNOPSIS:

Relation to general subject of anaphylaxis. Related to clinical conditions. Typical case histories. Influences of heredity. Diagnosis and treatment. Importance of Recognition. Bibliography.

12. "The Treatment of Graves' Disease Based on Specific Biologic Methods."

M. M. Portis, Chicago.

SYNOPSIS:

Various theories to explain the origin of exophthalmic goitre; pathology and pathological chemistry found in this disease; general treatment; treatment with sera.

13. "The Roentgen Evidences of Cholelithiasis." (Lantern Slide demonstrations.)

James T. Case, Battle Creek.

SYNOPSIS:

More than one hundred cases in the writer's experience have given definite shadows on the Roentgenogram. Probably half the cases of cholelithiasis will give a diagnostic shadow. Consideration of statistics. Technical considerations. Other valuable Roentgen evidence in connection with barium meal even when the gallstones are of such composition that no shadows are cast by the X-Rays. Conclusions regarding the visibility of gallstones and the value of the X-Ray method of searching for them.

SECTION ON SURGERY.

Chairman—A. M. Campbell, Grand Rapids.

Secretary—A. M. Stirling, Detroit.

First Session, Thursday Afternoon, Sept. 10.

1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

1. "Benign Tumors of the Stomach." Chairman's address. A. M. Campbell, Grand Rapids.
Discussants 1. V. L. Tupper, Bay City.
2. Alexander Blain, Detroit.

2. "Skull Fractures." Frank B. Walker, Detroit.
Discussants 1. C. Robbins, Bay City.
2. H. N. Torrey, Detroit.

3. "Exophthalmic Goitre."
Neil J. MacLean, Winnipeg.
Discussants 1. R. J. Hutchinson, Grand Rapids.
2. Rolland Parmeter, Detroit.

4. "Ileus." Raymond C. Andries, Detroit.
Discussants 1. A. I. Lawbaugh, Calumet.

SYNOPSIS:

Discussion of the causes that produce the grave condition of a patient suffering with ileus. When death occurs to what is it directly due?

In peritonitis when does ileus usually appear and if left undisturbed how soon will it prove fatal. Is there a difference between ileus with peritonitis and simple post-operative ileus?

The question of treatment: The different methods in vogue; a comparison of the manner in which nature produces a cure and the method advised for treatment of these cases.

A report of some cases of post-operative ileus and ileus accompanying peritonitis.

Second Session, Friday Morning, Sept. 11.

9 A. M.

5. "Gastro-enterostomy." Max Ballin, Detroit.
Discussants 1. R. C. Stone, Battle Creek.
2. Walter Vaughan, Detroit.
6. "Appendicitis." C. D. Brooks, Detroit.
Discussants 1. C. D. Munro, Jackson.
2. W. Ballard, Bay City.
7. "Renal Calculi." Daniel Eisendrath, Chicago.
Discussants 1. Angus McLean, Detroit.
2. F. B. Robbins, Detroit.
8. "Surgical Treatment of Facial Paralysis." E. H. Beckman, Rochester, Minn.
Discussants 1. R. B. Canfield, Ann Arbor.
2. C. W. Hitchcock, Detroit.
9. "Two Cases of Kidney Fracture Without Injury of Skin." F. B. Marshall, Muskegon.
Discussants 1. J. B. Kennedy, Detroit.

Third Session, Friday Afternoon, Sept. 11.

1:45 P. M.

Election of officers.

10. "Surgery of the Sigmoid." L. J. Hirschman, Detroit.
Discussants 1. J. A. McMillan.
2. H. J. Vanden Berg, Grand Rapids.
 11. "Intestinal Stasis." W. Seaman Bainbridge, New York City
Discussants 1. R. Peterson, Ann Arbor.
2. J. H. Carstens, Detroit.
 12. "Perforating Ulcers of the Stomach and Duodenum." Geo. E. Potter, Detroit.
Discussants 1. R. E. Balch, Kalamazoo.
2. B. C. Davey, Lansing.
- SYNOPSIS:**
Perforating gastric duodenal ulcers, pathological classification of a perforated chronic indurated gastric duodenal ulcer. Acute, sub-acute and chronic. Symptoms during 1st and 2nd hours following perforating. Early diagnosis. Treatment. Summary of eight cases.
13. "Symposium. Cystoscopic Diagnosis."
 1. Fred H. Cole, Detroit.
 2. Wm. J. Cassidy, Detroit.
 3. Wm. E. Keane, Detroit.

SYNOPSIS:

The brilliant advances made in surgery of the bladder tumors has brought hope to a class of cases that but little was done for in the past. To give these cases their proper chance for cure we must diagnose early. With cystoscope we can alone be positive with what type of tumor we are dealing with and the earlier the case is seen the better is the chance.

SECTION OF GYNECOLOGY AND OBSTETRICS.

Chairman, **C. E. Boys, Kalamazoo.**
Secretary, **Walter M. Manton, Detroit.**

First Session, Thursday, Sept. 10th.

1:45 P. M.

(The secretary will collect all papers as soon as they are read.)

1. Significance of the Serum Reaction in the Diagnosis of Pregnancy. R. G. Owen, Detroit.
- SYNOPSIS:**

Sources of error in collecting blood specimens and conserving the same. Reports of different methods of technic.

2. The differentiation of the Degree of Dilatation of the Os Externum during Labor by Extra-Vaginal Examination. W. E. Welz, Detroit.
- SYNOPSIS:**

Importance of few or no internal examinations during labor. Physiology of dilatation of lower uterine segment. The contraction ring. Method of palpating externally during labor. Personal experiences with the method. Conclusions.

3. The Application of the Obstetrical Forceps. John M. Bell, Detroit.

SYNOPSIS:

Development of the instrument. Indications and contra-indications for use. Methods of applying. The rational exertion of traction. Summary.

4. The Child During the Early Months of Life Compared with the Child at Birth. Clara Davis, Lansing.

SYNOPSIS:

Importance of immediate care following delivery. Problems of early hygiene. Study of statistics.

Second Session, Friday Morning, Sept. 11th.

9 A. M.

5. Gonorrhoea in Women. C. Hollister Judd, Detroit.

SYNOPSIS:

Its recognition during pregnancy and effect upon puerperium. Bacteriologic and clinical diagnosis. Points on pathology. Different methods of treatment.

6. Toxemias of Pregnancy. F. C. Goldsborough, Buffalo, N. Y.

SYNOPSIS:

Differentiation of uremic and eclamptic toxemias.

7. Puerperal Eclampsia. George Kamperman, Detroit.

SYNOPSIS:

The treatment by combination of with Stroganov's method. Report of cases. Significance of "intracurrent

eclampsia". A resume of the work done at the Zweifel Clinic, where non-active measures are used in preference to active obstetrical methods. Technic and results of treatment, and a comparison with the results obtained by active obstetrical proceedings.

8. Discussion of some unusual cases.
Rowland Webb, Grand Rapids.
9. Gynecology. F. W. Marlow, Toronto, Canada.

Third Session, Friday Afternoon, Sept. 11.

1:45 P. M.

Election of officers.

10. Chronic Obliterative Appendicitis.
Wm. F. Metcalf, Detroit.

SYNOPSIS:

Its differential diagnosis. Relation to acute attacks.

11. Gynecology. Channing W. Barrett, Chicago.
12. Significance of Uterine Bleeding.
H. Wellington Yates, Detroit.

SYNOPSIS:

Hemorrhage in relation to age. Importance of exact diagnosis, An imperative call for early treatment.

13. Carcinoma of the Breast.
Geo. M. Todd, Toledo, Ohio.

SYNOPSIS:

Age of occurrence with relation to uterine carcinoma. Present day opinions regarding treatment. (Lantern slides illustrating operative procedures.) Summary.

SECTION ON OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Chairman, Charles H. Baker, Bay City.
Secretary, Wilfrid Haughey, Battle Creek.

(The Secretary of the section will collect all papers as soon as read.)

First Session, Thursday, Sept. 10.

1:45 P. M.

1. Chairman's Address.
Charles H. Baker, Bay City.
2. Squirrel Plague Conjunctivitis.
Derrick T. Vail, Cincinnati, O.
(An entirely new ophthalmic entity, proven by unmistakable laboratory experiments. The case was a young man, "a meat-cutter" in a restaurant in Cincinnati, who became infected with the germs of Squirrel Plague in his left eye, presenting an unusual ophthalmic picture—One lantern slide.)

Discussion: Walter R. Parker, Detroit.

3. Conservation of Vision.

E. W. E. Paterson, Grand Rapids.

Discussion: Otto T. Ricker, Cadillac.

4. Resection of the Inferior Turbinate by Freer's Flap Method. Otto T. Freer, Chicago, Ill.

SYNOPSIS.

Distention of the Inferior Turbinate with blood the commonest cause of nasal obstruction. Flap resection of this turbinate by the author's method reduces it to proper size, preserves its moistening function, and leads to quick healing, because cut bone is enveloped in coverings of mucous membrane. Description of the operation as perfected by the author's experience.

Discussion: Flemming Carrow, Traverse City.
Robert W. Gillman, Detroit.

5. Suppurative Ethmoiditis.

Stanley G. Miner, Detroit.

Second Session, Friday, Sept. 11th.

9 to 11:30 A. M.

1. Symposium: Infection in and from the Upper Air Passages.
 - I. Bacteriology and Bacterin Therapy of the Upper Air Passages.
Anna Odell, Detroit.
 - II. Infections from Zymotic Fevers.
G. A. Bulson, Detroit.
 - III. Influenza, Coryza, Seasonal Infections, Etc.
Louis J. Goux, Detroit.
 - IV. Internasal and Pharyngeal Infection in Relation to the Eye and Ear.
E. P. Wilbur, Kalamazoo.
 - V. Acute and Chronic Sinusitis of Nasal and Pharyngeal Origin.
Ferris N. Smith, Grand Rapids.

Discussion: Bert R. Shurley and Eugene Smith, Detroit.

11:30 Adjourn to General Session.

Third Session, Friday Sept. 11.

1:45 P. M.

Election of Chairman for 1915.

1. Suppuration in the Middle Ear, Following Contagious Diseases. J. M. Robb, Detroit.
Discussion: V. C. Chapman, Muskegon.
2. Physiological Physics in Relation to the Eye and Ear. Austin F. Burdick, Lansing.
Discussion: D. Emmet Welsh, Grand Rapids.
3. Hemorrhage from the Ear.
Wallace E. Newark, Charlotte.

Discussion: M. L. Cushman, Lansing.

COUNTY SECRETARIES ASSOCIATION.

Sixth Annual Meeting.
Wednesday Afternoon, Sept. 9th,
2:30 P. M.

Capitol Building.

President—**C. T. Southworth, Monroe.**
 Secretary—**C. B. Fulkerson, Kalamazoo.**

Order of Business.

1. Call to order and roll call.
2. President's address.
3. Address by President of the State Society.
 Guy Lincoln Kiefer, Detroit.
4. "Is the Physician justly paid for his Services? If not how can we increase his Income?"
 Clarence E. Simpson, Detroit.
- Discussion: A. F. Kingsley, Battle Creek.
 R. L. Clark, Detroit.
5. The Public Responsibilities of the County Society.
 Frederick R. Green, Chicago, Ill.
- Discussion: J. J. Murphy, Pontiac.
 G. W. Trumble, Bay City.
6. The Type of Program that is of the Greatest Value and Creates the Greatest Interest and its Presentation.
 Theodore A. Felch, Ishpeming.
- To be read in absentia.
7. Organized Efforts.
 Frederick C. Warnshuis, Grand Rapids.
- Discussion: C. B. Fulkerson, Kalamazoo.
 F. M. Huntley, Lansing.
8. What a Councilor can do to Aid his Medical Society.
 W. J. Dubois, Grand Rapids
- Discussion: Arthur M. Hume, Owosso.
 A. E. Bulson, Jackson.
9. Shall the Secretaries Association meet bi-annually? General Discussion.

The Council of Michigan State Medical Society will give complimentary dinner to County Secretaries at Downey House 5:30 p. m.

Roll call of secretaries.

Informal discussion by Councilors and County Secretaries.

Every County Secretary should be present himself and see to it that his Councilor attends this meeting.

Councilors and Secretaries have mutual responsibilities in Medical Society work. Hence a meeting of this type should be greatly beneficial.

C. B. Fulkerson, Secretary.

REGISTRATION.

The members are requested to register as soon as possible after their arrival. The Registration Bureau will be located in the Capitol Building. Upon registration each member will receive an official program, badge and announcements of all details and arrangements. A general information bureau will also be conducted in connection with the registration bureau.

ENTERTAINMENT.

The Reception Committee will meet all incoming trains with automobiles and so far as possible convey the guests to their hotels.

Wednesday evening at eight o'clock the profession of Lansing will meet the visitors at an informal reception and smoker in the parlors of the Hotel Downey.

Thursday 4:00 p. m. Automobiles leave Capitol Building with those who desire a trip through the Big Reo automobile factory. 4:15 automobile tour of inspection of Michigan Agricultural College, State Industrial School, Michigan School for the Blind and other points of interest about the city.

Thursday 6:00 p. m. President's reception in parlors of Masonic Temple.

Thursday 7:00 p. m. Complimentary dinner in banquet hall of Masonic Temple given by the Profession of Lansing followed by spicy program of short talks, musical and vaudeville numbers to which all members and ladies are cordially invited. An enjoyable evening is assured.

FOR THE VISITING LADIES.

Thursday afternoon at two o'clock the ladies will be entertained at the beautiful new Women's Club House by the ladies of the Lansing profession and the Ingham County Nurses Association. At four o'clock they will join the doctors in an automobile trip about the city and in the evening at the reception and banquet. The doctors' wives are especially invited to attend this meeting of the State Society and are promised a pleasant visit.

HOTELS IN LANSING.

Hotel Downey, European. \$1.50 to \$4.00. Capacity 300.

Hotel Wentworth. European. \$1.00 to \$2.00. Capacity 500.

Hotel Butler. European. \$1.00 to \$2.00. Capacity 100.

Hotel Fleming. European. \$1.00 to \$2.00. Capacity 50.

Hotel Reogrand. American. \$1.50 to \$2.00. Capacity 50.

Hotel New Digby. American. \$2.00. Capacity 50.

The Committee on Hotels will also have a list of rooms in private residences and those who desire such accommodations may secure them by applying at the Registration Bureau.

Book Reviews

DISEASES OF THE RECTUM AND COLON AND THEIR SURGICAL TREATMENT. By Jerome M. Lynch, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; attending Surgeon, Cornell Dispensary; Fellow of the American Proctologic Society, New York Gastro-Enterological Society, etc. Octavo, 583 pages, with 228 engravings and nine colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Lynch on Diseases of the Rectum and Colon will undoubtedly take its place as the leading work on this subject in the English language. Its text is excellent throughout, and presents much that is new and useful. The systematic arrangement and the use of heavy type for center and side headings make it easy to find any subject quickly. Its numerous illustrations are unusually large and clear, and are evidently the work of an artist of rare ability. The volume has a sumptuous appearance, which is in keeping with the high literary standard of the work. The author has addressed his book particularly to those who have not attained well-rounded experience in rectal and colonic surgery, and, as the needs of each reader are different, in order to cover them all, he has embraced the entire field, and has discussed the subject in full detail. He has endeavored to prepare the reader in advance to meet those many things which, though apparently trifling, are generally left to his resourcefulness, and may either make or mar an operation. The book also includes the preparation of the patient, the after-treatment, complications that may occur and how to handle them. It also gives cautionary advice as to mishaps to be avoided. In short, it is a literary and pictorial presentation of the best modern technic, and will be of great value to both the practitioner and specialist.

There is no question but that if the general practitioner gave this subject more of his attention and made a determined effort to become more thoroughly familiar with diseases of the rectum and applied to them modern treatment that these patients would not drift in the hands of questionable and advertising specialists. This work will enable every practitioner to acquire reliable and trustworthy knowledge and we heartily recommend this book to them.

TEN SEX TALKS TO BOYS. (Ten years and older) by Irving David Steinhardt, M.D. Instructor in Clinical Surgery and Assistant Surgeon, Cornell University Medical School. Twelve illustrations. Cloth, 188 pages; J. B. Lippincott Co., Philadelphia. Price \$1.00.

Is there a boy in your family? Have you a son, a brother, a nephew or cousin—"just a boy" or any degree of relationship to you? What do you want that boy to be?

Ask yourself whether you wish this boy to have

any kinship of nature or fortune with the men of the street corner, the saloon, the dark places of the earth—men from whom all self-respecting persons turn in disgust?

What are you doing to safeguard him against it? Every boy has a hundred temptations to his sister's one. If it is of the highest importance, as many authorities agree, that our girls should be taught knowledge that will protect them from danger, it is at least equally so that our boys should not be wantonly sacrificed to evil, in their inexperience and ignorance of the dangers of the world.

In "Ten Sex Talks to Boys," Dr. I. D. Steinhardt has put in the simplest, most straightforward and wholesome way, the knowledge that would hold back ninety-nine out of 100 boys from evil courses, if it were given them at the right time. Such men as Judge Lindsey, of national fame as a savior of neglected boys and girls, have set the seal of approval upon this book. The Judge says, in part: "It is little short of a crime in this day and age to withhold instruction from youth on this important subject."

If you would have your boy become a manly man, keep him a manly boy. All of us want our boys to be manly men. But we go about making them such in a very strange way. Many of us deliberately allow them to walk in evil ways—to "sow their wild oats"—to become unfitted morally and physically to become manly men. We have a vain faith that after the wild oats are sown, the man can again become pure of heart, upright of soul, manly and strong, when he has been none of these things during the years when his character was forming. That the faith is vain, is proved in our insane asylums, hospitals, every physician's consulting room, and in thousands of lives darkened by disease, disgrace and death.

Give your boy the protection of pure knowledge offered by Dr. Steinhardt's book, that he may turn from the perversion of truth in manly scorn when it is offered him by the emissaries of evil. There is nothing in this book that will weaken his love of the good, the pure, the reverence he instinctively feels for womanhood, the guard he sets in his thoughts about every good girl who is near or dear to him. *Protect your boy*—and do it now—before the first whisper of temptation grows loud in his ears—before his footsteps have taken hold upon moral and physical perdition, which they may never retrace to the world of manly men!

This book should be in every physician's library and recommended to parents.

A TEXT BOOK OF MEDICAL DIAGNOSIS. By James M. Anders, M.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia and L. Napoleon Boston, M.D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second edition thoroughly revised. Octavo of 1248 pages, 500 illustrations, some in colors. Philadel-

phia and London. W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

The profession is here given a second and thoroughly revised edition of a work that in the beginning was written at the repeated solicitation of practitioners and students. This volume enables the reader to gain a knowledge of disease by furnishing him with an improved method of determining clinical features so that all the symptomatic phenomena in a given case may be collected with ease and certainty. Mention must be made of the summary of the diagnostic features of each disease and the methods of laboratory diagnosis.

The author's name at once stamps it as a recognized authority. It is a most practical book, the outcome of a large practical experience, clear, well up-to-date. Its arrangement is good; illustrations and colored plates are clear and enhance the value. It is the work that belongs on every physician's desk. We predict a greater reception for it than was accorded the first edition.

A TREATISE ON CLINICAL MEDICINE. By William Hanna Thomson, M.D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.00. Half Morocco, \$6.50.

This is an excellent volume that considers those subjects which most concern a physician when he deals with the sick. The meaning of certain common but always important symptoms is clearly explained so that the reader is enabled to thoroughly understand them. Forty pages are consumed in pointing out the significance of common but important symptoms such as pain, cough, maciation, dyspnea, edema, and vomiting. Then follows an excellent chapter on the use of remedies, how they can be conveniently classified according to their special applications.

There then follows a section devoted to diseases caused by micro-organisms and the last section of the volume deals with diseases of particular organs and tissues.

A most practical work that is bound to be of inestimable value to the owner. I know of no book so well adapted to the general practitioner.

CRILE AND LOWER'S ANOCI-ASSOCIATION. By George W. Crile, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$3.00 net.

Here is a volume for which we have waited long and now that it is obtainable we predict its welcome and eager reception.

It contains in part one, a statement of the Kinetic Theory of Shock and the principle of Anoci-Association and a summary of a long series of experiments in the form of monographs on: Surgical Shock, Surgery of the Respiratory System, Problems Relating to Surgical Operations. The Blood Pressure in Surgery and Hemorrhage and Transfusion. Part two is the description of the application of the Kinetic Theory to the technic of surgical operations.

The work is a practical presentation of the subject. It is a mint of information. There is nothing left out that might be desired by anyone desirous of familiarizing himself with the subject. Its general make up illustrations and typographical construction add to its value and increase one's admiration for the volume.

DISEASES OF THE BONES AND JOINTS. By Leonard W. Ely, M.D. Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. Sextodecimo: 220 pages, 94 illustrations. Surgery Publishing Co., New York. Price, cloth, \$2.00.

The unusual interest now manifested by the profession in Acute and Chronic Arthritis, as well as other forms of Bone and Joint Diseases makes this book particularly timely.

Prof. Ely is particularly well equipped from experience to present an authoritative work, having specialized in this particular branch of surgery for years.

This book is intended primarily for the general practitioner, but instead of furnishing that long suffering and very important person with a mass of details, and with many methods of treatment from which he may choose, the book lays down broad general principles, with the evidence upon which they are based, and then shows how these principles may be applied.

In a brief terse way, it presents the Anatomy, Physiology and Pathology of Bones and Joints, Acute and Chronic Arthritis of various types, Ankylosis, Diseases of the Shafts, Acute Osteomyelitis, Chronic Inflammations in the Bone Shaft, New Growths in Bone, etc.

The profuse Photo-Micrographs with other illustrations aid materially in placing up to the eye of the reader the contents of the book and the marginal side-heads, printed in contrasting colors, permits of ready reference.

It is a book which will be much appreciated by the general practitioner and can be read with the assurance that it presents valuable instructions from an authoritative source upon a subject where much light is needed.

GUIDING PRINCIPLES IN SURGICAL PRACTICE. By Frederick-Emil Neef, B.S., M.L., M.D. Adjunct Professor of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo: 180 pages. Surgery Publishing Co., New York. Price, cloth, \$1.50.

The author answers herein some of the questions

which present themselves to the general practitioner and surgeon, particularly in the beginning of his career, during the period in which he formulates for himself the rules that are likely to direct him in his future work.

The viewpoint is based on clinical studies in the operating room and at the bedside of the patient. The book covers the practical points in the preparation of the patient for an operation, the arrangement of the operating room, the important relations between the surgeon and his anesthetist, the assistant, the family physician, the nurse during the course of the operation, also the after care of the case.

Other chapters in the book cover such important considerations as Sterile Washes and Wound Dressings. Sterilization of utensils and Instruments for the operation. The Surgeon's Hands. Wound Healing and Scar Formation, Asepsis, Suture Material, Anesthesia, Incision, the Course of the Operation, Care of the Patient after Operation, the Treatment of Unclean Wounds, in fact, within this book of 180 pages will be found those very necessary essentials that guide in the successful handling of operative work.

The mechanical features of the book are superb, presenting throughout marginal headings in contrasting ink, facilitating most ready reference.

It has been a long time since we have seen a work of this size that contains so much valuable information and imparts such practical details. It is a volume filled with intellectual meat that will serve the possessor well in his practice. We commend it unhesitatingly.

THE PRACTICE OF SURGERY. By James G. Mumford, M.D., Lecturer on Surgery in Harvard University. Second Edition, thoroughly revised. Octavo volume of 1,032 pages with 683 illustrations. Philadelphia and London. W. B. Saunders Company. 1914. Cloth, \$7.00. Half Morocco, \$8.50.

This second edition of this volume, revised to date is presented to the profession. It is a work that takes up the practice of surgery in the order of the frequency, importance and interest of the various diseases and presents them in their true perspective. It is not an encyclopedia of surgery—it is an excellent reference and text book for the general practitioner for it presents him with reliable information and aid in treating the surgical conditions that he meets in his daily practice. The rare, the infrequent subjects are but mentioned; the greater portion of the work is devoted to the surgical conditions most frequently met and their every phase is carefully, intelligently and clearly discussed.

Appendicitis, surgical conditions of the small intestine, colon, rectum and anus, stomach and duodenum, liver and bile passages, pancreas and spleen, hernia, gynecology, genito-urinary, chest, face and neck, head and spine, fractures and minor surgery are the head-liners of the work.

As a whole there is everything to commend and

recommend. If we might suggest, we would like to see the chapter on fractures give away to some other topic because it appears to be but a repetition of Scudder's writings and illustrations.

The general practitioner will not go astray and will be more than pleased with this work.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number III. Octavo of 215 pages, 54 illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year, paper, \$8.00. Cloth, \$12.00.

Vastly enriched and increased in value by reason of the author's talks on Surgical and General Diagnosis, this number is presented to the profession. The reviewer cannot conceive how any physician desirous of remaining abreast with the times can permit himself to forego possessing these clinics. Filled from cover to cover with practical everyday helpful hints and suggestions it is a work of excellence the like of which there is no other.

This number is filled with an excellent variety of cases and leaves nothing to be desired. It belongs on every physician's desk to be read, studied and preserved as a reference work.

Miscellany

PROPAGANDA FOR REFORM

The Absorption of Iron.—The belief that organic compounds of iron were superior to inorganic iron salts arose before it was known that the bowel forms the most important channel for the excretion of this element, whence the failure to find an increase in the amount of iron eliminated with the urine by means of the kidneys after ingestion of the element in some form or other was taken as an indication that it had not been absorbed. Today it is known that iron can be absorbed and excreted by the intestinal wall. Experiments have demonstrated that both inorganic and organic iron can be absorbed and satisfactorily carry out the purposes for which iron is administered (*Jour. A.M.A.*, June 13, 1914, p. 1913).

Sodium Fluoride.—While the poisonous character of fluorides is recognized, the use of sodium fluoride as a food preservative is still considered. As a result of experiments, F. Schwyzer concludes that flourine preparations are poisonous even when administered in very small doses (*Jour. A.M.A.*, July 25, 1914, p. 323.)